COMPUTERWORLD

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Four engineers make simultaneous use of a SDS 945 computer.

Scientific Data Systems Offers Small Computer

LOS ANGELES Scientific Data Systems has announced the SDS 945, the third in its line of time sharing computers, available for delivery this year The new computer uses the same software as the SDS 940 but accommodates fewer users.

The SDS 945 will lease for less than $15,000 per month, compared with $26,000 for a 940. This means that the new computer leases for less than any other time sharing computer on the market, according to SDS.

The 945 is designed primarily for in-house time sharing services where a relatively small number of individual users require fast conversational response, and for many user-oriented processors.

The SDS 945 can accomodate up to 24 simultaneous users and can service 64 authorized users with a total file space of eight million characters. The 940 accommodates 32 users simultaneously, recognizes up to 512 individual authorized users, and has a 60 million character storage.

Both the 945 and the 940 are supplied with seven interactive, on-line processors including CAL (conversational algebraic language), Fortran II, Conversational Fortran, Basic (beginners all purpose symbolic introduction code), TAP (time sharing assembly program), QED (quick text editor), and DDT (dynamic debug routine).

The processors and the time sharing monitor for the SDS 945 are identical to the software provided for the SDS 940, which has been in commercial use since 1966. The 940 is suited to large scale users, such as commercial time sharing centers and large [illegible]tralized organizations hav[illegible] many users who require [illegible]ational access to one com-

Leasco to Open First Time Sharing Bureau

GREAT NECK, N.Y. Leasco Data Processing Equipment Corp., already in computer leasing and software development, is going to enter the time sharing utility field.

Leasco has appointed Dr. Walter E. Simonson, formerly vice president of the Multi-Access Computer Division of CEIR, Inc., to plan and implement the company's new activity.

Preliminary plans call for locating the first time sharing center at the Bethesda, Md., facility of Leasco Systems and Research Corp., Leasco's software subsidiary. The center is expected to be the beginning of a broad computer service network, according to Saul P. Steinberg, Leasco chairman.

Simonson headed CEIR's three-city utility service, the first available for commercial users, and has been a representative to the U.S.A. Standards Institute committee on common programming languages, a Leasco spokesman said

Versatile System

Plans call for a direct access system via remote terminals for industrial, commercial, scientific, engineering, and financial organizations. Simonson said a wide range of programming languages and specialized software will be made available to clients.

Earlier this month, Leasco announced it would enter the European market with a full scale software systems and research organization. Operations are to begin in Great Britain, Holland, and Spain, and to be expanded into other countries by the end of the year.

Expansion Underway

Subsidiaries already organized are Leasco Systems and Research Ltd., U.K., Systems and Research Nederland N.V.; and Data Management Systems Nederland N.V.

The new European organization is headed by Dr. Alexander Douglas, former director of technical services for CEIR Ltd., Great Britain, and Allen Macro, formerly president-directeur of CEIR, N.V.

Leasco already has a leasing subsidiary in Europe called Leasco Europa Ltd.

Leasco, through a series of acquisitions and expansions, has grown from a $35,000 a year business in 1962 to a $100 million a year business today.

Developer Claims 'Peac' Better Than Pert-Cost

PASADENA, Calif. – A new computer based war-gaming technique, developed to replace the Pert-Cost system, was announced last week by Dr. Philippe Clavier, president of Economatics.

The new system, called "Peac" (program establishment and control) is a proprietary computer program which can be used on any model IBM System/360, or on any other third generation computer, he said.

It is similar to Pert-Cost, but is much more comprehensive and considerably more automatic, he claimed In addition, Peac encompasses all the uncertainties of performance, schedule, and cost and predicts them for each elementary task, he said.

Air Force Idea

Clavier told COMPUTERWORLD that Peac was designed because the Air Force told its contractors to use Pert-Cost or some equivalent system. But, he said, there was no equivalent system until now.

Peac is written in Fortran, so it is transferrable between systems.

The new system operates in two modes: meaningful schedules and costs are forecast before a proposal is made, and new schedules and costs are continuously forecast after a contract is received. Cost and schedule slippages are, therefore, pinpointed rapidly, Clavier stated.

More Automation

The main advantage of Peac is that it automates more of the process. It can reform the network when changes occur, such as a change in the time a project is expected to take. With Pert-Cost, such changes must be made manually hy the analyst.

Peac can handle up to about 3000 alternatives. But the system uses a large amount of core, more then 131K, and a considerable amount of disk storage.

Peac, which will sell for about $10,000, has undergone thorough testing and is ready for distribution. However, it is not yet operational on any user's system.

Additional information on Peac may be obtained from Economatics, 225 South Los Robles Ave., Pasadena, Calif. 91106.

Is System 'Theft' Scandal or Rumor?

LONDON – British computer people have been kept on the edge of their chairs this month by the investigation of the James Bond-like "theft" of an airline reservation system.

Just what was "stolen" or what the "thieves" would do with the material was unclear, but the British press reported that the British Overseas Airways Company's security people were making what would he called here, a federal case out of the whole matter.

The "scandal" centered around Boadicea (British Overseas Airways digital information computer computer for electronic automation), a top secret project to provide an integrated system providing information on everything from seats to meteorological conditions and fuel needs.

First reports were that someone had copied the documentation for the multi-million-dollar system and had approached another airline with the "hot goods."

But, it was later pointed out that the documentation comprised about 60 volumes and that copying all of it would be quite a task. It was also pointed out that the system was tailored to BOAC's operations and could not be easily modified for use by someone else.

The uproar apparently began with a report that a document cover had been seen on the desk of a former BOAC employee. It quickly developed into an investigation of all BOAC employees with access to the material. One BOAC employee, who was about to leave the company, said the security people admitted that they had his telephone bugged.

Stocks Off 1st Time in 2 Months

CW's Computer Stock Composite Index fell for the first time in over two months as the stock market continued its latest "correction." The index decline of 2.43% outpaced the 1.54% loss suffered by the Dow Jones industrial average. The former stood at 131 and the latter at 899 on Friday's close. Losers again outnumbered gainers two-to-one among computer stocks.

Scientific Controls (SC) staged another sharp upward move last week despite the general downward trend. SC gained 40%, to 59. Since March 1 the stock has moved up 162%. The only other gainer among stocks of computer manufacturers was Hewlett-Packard. H-P gained 1% to 83-7/8. Scientific Data Systems was the biggest loser in the

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This ITT center in Paramus, N.J. is serving the Boston area until the new center in Waltham, Mass., is ready.

ITT Opens Second Link In Time Share Network

WALTHAM, Mass. – ITT Data Services has extended its time sharing service to New England.

The system, called Reactive Terminal Service (RTS), enables users to communicate with computers miles away via standard communications devices such as teletypewriters.

Robert A. Leonard, president of the ITT Data Services division of International Telephone and Telegraph Corp., said, "The introduction here of what we believe is the nation's most advanced computer time sharing service marks the second phase of an expansion program that will make this service available throughout the United States within 18 months."

Noting that ITT announced RTS in the New York City area only a month ago, Leonard added, "The vast concentration of computer oriented organizations in the Boston area made it a natural choice as the next market area for this new service."

Robert A. Leonard

At a demonstration, operators at a variety of terminals here solved a number of different problems simultaneously through the use of an IBM System/360 computer at ITT Data Services' headquarters in Paramus, N.J., approximately 200 air miles away.

Local Computer Planned

New England users of the service will be able to bring this computer on-line in their offices by making a local telephone call. With the installation of a similar computer in the Waltham center later this year, that facility will become the hub of a regional data processing and data communications network capable of serving an even larger number of customers.

Leonard said that RTS service utilizes a proprietary software system developed by ITT which assures computer response to inquiries in as little as two seconds. It offers high level programming languages such as Fortran IV (G level), and is compatible with a variety of computer communications devices.

Simple Commands Used

A 25-word command language enables users to "converse" with a computer with as little as a few hours of training, Leonard said. He added that tests have shown that the efficiency of computer programmers in writing and debugging programs on a remote terminal can be increased by more than 400%.

RTS service became commercially available in New York after two months of testing by 14 business, educational, and scientific organizations. It will be introduced in Los Angeles and Washington, D.C. during the next three months and in about 20 other commercial and industrial areas of the country by the end of 1969, the ITT executive stated.

In its present state, RTS service is capable of handling up to 100 terminal users per computer and will be expanded to a capacity of more than 300 terminal users per computer in the near future, he added.

Smaller Computers Shine At Expense of the Giants

BAL HARBOUR, Fla. – Once it was thought that a few large computers strategically placed around the United States would provide all the capacity needed to service "those few" who would need computing power. Today there are more than 100,000 computers installed or on order, Arthur F. Heald, banking coordinator for the Computer Usage Development Corp., told the ABA conference here.

Some very large computers are useful to only a few government supported organizations or large companies, but there are also many medium to large computers "available to the computer user who has an economic and technological base that requires this level of computer." Just in recent months, there has been an increase in "availability and ability" of small commercial computers, those whose annual rental is between $30,000 and $60,000, Heald said.

What Do You Need?

There is "really no problem" as to the capability of hardware, and the only real question for any user is how much capability he needs, Heald said. "And with the new hardware, most manufacturers have also introduced or offered a planned pattern which allows users to increase or change their computer hardware as their needs dictate without costly software or applications changes. In effect, the computer can grow as the user's needs grow."

Heald stated that hardware manufacturers are realizing that software has an "equally important part" in the success of an installation, and that they are therefore making more and better software available to the user. This makes the hardware an effective tool sooner, he asserted.

Great efforts are being made to develop the "checkless" society and possibly the "cashless" society and banks are facing an increasingly crushing load of paperwork, Heald said. It is thus essential for banks to make use of the ability of computers, he concluded.

Customer Services

When a bank finds that it cannot justify the use of a computer solely for its own internal needs, Heald suggested that the area of the customer services may then become "the way in which the bank can operate the computer center on a profitable basis." Computer services will also allow the bank to offer additional services to its clients with whom it is developing a close business relationship, he said.

Unless a bank is willing to take "aggressive action" in pursuing new business or in developing additional business with existing customers, "the chances of performing customer services are probably limited and the expense of the computer system will fall back primarily on the internal bank operations," Heald told the bankers.

Although it may not be economically justifiable to obtain a computer in the short run, it may nevertheless be, "with the checkless society bearing down on us," that farsighted bankers will realize that their banks will use computers eventually. "It may have less of an impact on the total operation to move into the computer area now, accepting the economic loss but gaining valuable experience," Heald commented.

"Banks should investigate and be aware of the effects of the checkless society and to the requirements that will be placed upon them as we move even closer to its total implementation," he said.

RPG to Cobol Translator Developed by Honeywell

WELLESLEY HILLS, Mass. – Honeywell has developed an RPG-to-Cobol translator that will enable users of competitive small computers to switch to Honeywell Series 200 systems.

A potential market of 12,000 installed and on-order card computer systems, valued at more than $1.5 billion, is the market that Honeywell intends to concentrate on by selling the Model 110, 120, and 125 as replacement systems, according to William C. Stancik, group product manager, Electronic Data Processing Division.

The new Honeywell system translates programs written in third generation RPG to Honeywell Cobol B.

A Step Upward

RPG is used primarily in small computer installations which process only punched cards for routine accounting applications such as payroll, order entry, billing, accounts receivable, accounts payable, and general ledger.

The RPG-to-Cobol translator converts the RPG programs into standard Cobol English language programs which operate either in a magnetic tape or in a direct access environment.

Users who have outgrown their punched card RPG systems can move in one step into a magnetic tape or direct access data processing system, with built-in growth to faster, more powerful Honeywell systems, Stancik said. Most punched cards systems using RPG cannot move up to larger systems without costly, time consuming reprogramming, he said.

Lower Rental

A typical third generation card system – which represents about 90 per cent of the users of RPG – rents for about $2900 per month, Stancik said. By contrast, a Honeywell Model 110 computer system with 12,198 characters of core memory, three magnetic tape drives, card reader/punch and line printer rents for about $2600 a month, he said.

Converting to tape oriented systems from a punched card environment has additional advantages: magnetic tape is reusable, cards are not; one magnetic tape reel stores the same amount of data as 36,000 punched cards; data stored on magnetic tape can be processed at electronic speeds, cards cannot.

Stancik said the RPG-to-Cobol translator will be demonstrated in October and delivered in December, at no additional cost, with Model 110, 120, and 125 computer system.

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Bankers Told to Enter Lease Field

Dale L. Reistad, Director of the Department of Automation of the American Bankers Association.

BAL HARBOUR, Fla. – Banks should actively engage in computer leasing, a general leasing consultant advised bankers in a session of the ABA Automation Conference. In fact, the corporate customers of banks should never enter into computer leasing agreements or programs "without first having consulted with their bank," said Wilber I. Newstetter, Jr., vice president, Havenfield Corporation, New York.

"Many industrial companies with which I am acquainted are badly overcomputerized," Newstetter added. "This is a result of a superb marketing job on the part of computer manufacturers and a 'status symbol complex' which has become *de rigeur* with industrial and manufacturing companies."

Take Bank's Advice

No one is in a better position to help assess the future growth and computer needs of a corporation than its own principal bank, the leasing expert asserted. Instead of relying on "the young 'hot shot' EDP 'experts'" whom they have hired, financial vice presidents of corporations ought to rely on the commercial banks, Newstetter said. Only in this way can top management be sure of making a "shrewd judgment" on the matter of data processing and the necessity of in-house capabilities.

The great majority of manufacturing and industrial firms that are moving into the third generation computer series "have not properly thought through" their hard core main frame requirements, he argued. "They have let themselves be talked into short term, non-full-payout, cancellable leases in order to temporize the planning of their EDP personnel."

Good Old Finance Lease

"When I say that banks should enter computer leasing, I want to make it clear that what I am talking about is the good old finance lease, full-payout-lease, which affords the bank the risk only of the general credit of the lessee and includes the ordinary necessary chattel mortgage protection," Newstetter said.

One of the reasons for banks to enter computer leasing is that leasing affords an opportunity for banks to increase their earnings per share, by means of the bank itself becoming the direct lessor and turning a term loan into a lease loan. Nor is the risk of obsolescence an overriding deterrent, for "it will be well after 1975 before the fourth generation computer series makes its debut, and even then it will be a much less traumatic change than we witnessed in the transition from the second to the third generation computer series."

Newstetter concluded his argument by stating, "It is time that the commercial banks quit fighting their corporate customers who want to lease, try to begin to understand what the motives are for leasing, which are very legitimate, and switch aggressively to participate actively in the leasing industry which will surely grow, and grow, and grow in the 1970s."

Newstetter spoke at a session of a conference conducted here by the American Bankers Association Department of Automation, headed by Dale L. Reistad, ABA Deputy Manager. The conference was devoted to the theme, "S.O.S. – Services of the Seventies."

Banks Can Handle Their EDP Needs in Four Ways

BAL HARBOUR, Fla. – Four basic automation alternatives are available to banks today, according to W.R. Synnott, assistant vice president, First National Bank of Boston, speaking at the ABA Conference on Automation. First, a bank can install its own computer. Second, a bank can start a joint venture with one or more other banks. Third, it can use a service bureau. Or, fourth, it can use another bank's services.

However, it is not necessary for a bank to restrict itself to only one of these alternatives. Synnott recommended that each bank select the combination that best fits its particular needs. For example, a bank might decide to acquire a small computer, or organize a joint venture computer center with one or more other banks, but still expand its computer capacity "by using a distant correspondent bank's computer (via data transmission) for one or two services only."

In Our Time

Data transmission over telephone facilities will be greater than voice transmission by 1970, Synnott predicted. Much of the growth in the amount of data transmission will be due to development of on-line systems, but much will also simply be because it provides a fast means of sending and receiving data and eliminating the physical movement of paper, he said.

In a 1966 study cited by Synnott, over 50% of 1361 respondents believed that their data transmission volumes would be two to 10 times greater by 1970, and 15% felt that it would increase by more than 10 times. Practically all on-line customer services in banking today are savings applications, he noted. But in early 1968, a group of banks organized a communication network ("Tele-net") to provide a standardized means of transmitting Lock-box Information and other data between banks and corporate customers. This group, with 68 banks participating, was called by Synnott "another indication of the growing use of data communications."

Multisystem Advantages

Among the advantages of a multisystem approach is the fact that it makes a more "custom-tailored" system possible, and one inexpensive terminal can often be used to collect from several different applications for transmission, Synnott said. Also, the small computer system's capacity is expanded at a "fraction" of the cost of installing a large computer.

A multisystem approach, he said, enables the bank to get more fully automated faster, easier, "and often cheaper" than by trying to develop everything in-house.

Synnott quoted the following from the April, 1967, issue of "Bank Automation Newsletter":

"It is generally agreed that banks of all sizes must eventually computerize in order to survive. Yet the smaller banks simply cannot afford their own system. For some 9000 banks faced with this dilemma, the best solution appears to be data transmission. With this approach, the location of the computer itself is about as important to the user bank as the location of the power plant providing his kilowatts."

Robot Teller

Unit Accepts Cash, Gives Receipt

BAL HARBOUR, Fla. – Bank customers can now make deposits without going to the bank and without using the mails. To make a cash deposit of $999 or less at First National Bank of Arizona, the customer has the option of using an "automatic depository" at his neighborhood supermarket, shopping mall, discount house, or factory. Thus one bank has already taken "the next natural step in the development of automation," Vice President Edward Smith of Milgo Electronic Corporation, Miami, told a session of the ABA Conference here.

The new device is not as automatic as "the sophisticated equipment you are used to," Smith told the bankers, "but it does bridge the gap between the bank and the customer."

Automatic depositories can "build the bank's local image as a forward-looking, forward-thinking bank," Smith said. "The bank may have hundreds of thousands of dollars worth of automatic data processing equipment installed on another floor of the building. Usually, only the bank personnel know about it. But the customer and the prospective customer see the automatic depository as a visual symbol of the bank's progressiveness."

Hospital Data Files Protected By Two-Level Security System

HARTFORD, Conn. – The security of hospital files can be guaranteed by a procedure under which every user of the system has a unique three digit code number. Then, when the user signs onto the terminal by using his code, the terminal will be unlocked to him, according to Peter Erickson of the Institute of Living, a teaching hospital here. With each subsequent transaction, the person making the inquiry uses his payroll number, and the computer checks its file to determine whether he is eligible for the information.

Information Retrieval

Besides keeping information secret, an automated master patient system can free doctors and nurses from paperwork by performing information retrieval and on-line input.

By using visual display units located at various stations within the hospital, doctors and nurses can check patient status, hospital census, new admissions and discharges, bed availability, and other information relevant to the care of patients. From such terminals, information can be fed into a central computer so that doctors and other personnel can check the status of their patients at any time of day, from any part of the hospital.

On-line input is used when, for example, a diagnosis is made. Symptoms can be fed into a computer and the ailment automatically diagnosed.

CRT Units

At the Institute of Living here, seven new on-line electronic cathode ray tube (CRT) units are connected to a central computer within the teaching and treatment hospital. Two additional Bunker-Ramo terminals were tied into the regular system from the War Memorial Auditorium in Boston, to demonstrate the electronic hospital information system to nearly 9000 psychiatrists at the annual meeting of the American Psychiatric Association, May 14-17.

The system represents "one of the most advanced" applications of computers to patient care, according to Dr. Bernard C. Glueck, Jr., who headed the project team that developed the system. The project was facilitated by a grant from the National Institution of Mental Health.

Bankers Urged

Let Service Bureaus Handle ACS

BAL HARBOUR, Fla. – The commercial service bureaus industry "has not taken lightly to your entry into what they consider their business," the American Bankers Association was told here at its automation conference. Fred L. Ritter, Jr. of the Service Bureau Corporation, New York, lamented the fact that today commercial service bureaus are "little used" in the performance of automated customer services (ACS) for the customers of banks.

Instead of doing on-premises processing, banks should subcontract ACS tasks, Ritter said. One of the advantages of subcontracting is that commercial service bureaus can "materially assist" banks in developing and carrying out an effective market strategy that will sell ACS to the banks' customers. Another is that the service bureaus have a "wide range" of experienced systems and program analysts.

The large commercial service bureaus have to keep pace with the most advanced techniques in data processing and information retrieval systems, which might be "economically possible" for only the largest banks, the service bureau representative explained. He assured the bankers that the conversion from on-premise processing to subcontracting is "normally a rather smooth one."

Is separate pricing
of hardware and software
really desirable?

The editors of EDP Industry Report, the newsletter for executives concerned with the electronic data processing industry, aren't at all sure that it is. Read their analysis – which indicates that separate pricing, over the long term, would probably be good only for the industry giant – in the current issue.

Single issues are available, while they last, for $3.00. Better yet, start your subscription with this issue. For a limited period, EDP/IR will continue to be available for $49.50 a year. Keep ahead of the information processing industry with your personal subscription to EDP Industry Report – your window on the world of the computer.

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Editorials

A Welcome New Concept

The story of the year in 1967, so COMPUTERWORLD thought, was the creation of terminals which had more than simple functions. In our article "Look Where the Logic Is Going" in our first 1968 issue, we drew attention to the use of small, scientific computers as parts of display and remote terminals. These terminals heralded an effective increase in productivity of the large computers because it relieved them of the need to handle many chores.

Now we have a new type of computer terminal, one based on a device which in the past has been viewed as an alternative to the use of the computer: the electronic accounting machine. The Burroughs TC500 terminal joins a rapidly growing band of products which allows one to combine a limited computing capability at a remote site with direct access to a central computer complex of large capacity. A terminal such as UCC's Cope 45 which incorporates a small system computer (DEC's PDP-8) to do data editing and preprocessing is another example of such a product.

This is a welcome trend. A trend which may put a "personal computer" within the reach of most professional people before the 1980s. A personal computer that gives the user its undivided attention, yet when called upon, can ask for the memory end computational assistance of a multi-million doller computer utility complex.

We offer a warm reception to this trend and to the Burroughs TC500 which exemplifies it.

An Interesting Point

Washington recently experienced en emergency. The White House wasn't burning – but just a few blocks awey the city was. No one was shooting et the President – but shots were fired. People were trying frantically to organize all available resources to meet urgent needs as they arose. Modern, automated techniques were in demand.

From ell accounts, the job was magnificently done – not by computers, but by optical search equipment, from the Jonker Corp., which was able to go into immediate operation, actually doing the job while the needs and resources were being developed.

It's interesting to be reminded that computers eren't elways the answer to a data processing problem.

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Alan Taylor, Editor in Chief. *W. Walter Boyd*, Managing Editor. *Robert M. Patterson*, News Editor. *Neal Wilder*, National Sales Manager. *Henry [illegible]*, Production Director. *M. Phelan*, Circulation Manager. *Joseph [illegible], Kate Rachstein, Evelyn Cowell, Elly Tannenholtz:* Associate Editors. *R. Zeigel:* Position Announcement Manager. *Patrick J. McGovern*, Publisher.

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Measure for Measure

MAI 2301 Access Times Checked Against Charts

The MAI 2301 disk drive is claimed to be faster than competitive drives and to have an everage access time of 50 milliseconds.

Access time is currently defined as the time necessary to perform all possible seeks divided by the number of seeks; that is, the length of time before the heads are properly positioned over the tracks where the data is waiting. It does not include the time required for the disk to rotate and bring the required data under the head.

In conformance with COMPUTERWORLD's normal methods of handling "Measure for Measure" inquiries, we requested details of the information on which the claims were based. We received from MAI, which is currently marketing the drive, made by and from Memorex, which manufactures it, copies of time charts that show the time used by a 2301 and by an IBM 2311 when seeks were made in e forward direction (say from track one through track five) and when they were made in a reverse direction (say from track 200 to track 50).

These MAI charts show that the maximum seek time was 76.8 millisec. when the seek was in the forward direction and 80.8 millisec. when it was in a reverse direction. The Memorex charts showed e maximum forward seek time of 77.7 millisec. and e reverse maximum of 79.7 millisec.

Accuracy of Charts

The next question was the accuracy of the timing charts. To check this we referred to the letest IBM publication which includes a timing chart for the 2311. This was done because the charts supplied to us included details of the running of the same programs on the 2311 as well as on the 2301.

The figures were compared, and the standard pattern of the 2311 access times was found to be present, with the actual timing as noted by the program noted as being slightly under the published IBM timings; i.e., the 2311s were apparently slightly faster than IBM had announced. So we were satisfied thet the timing charts represented actual times.

Checking "Average" Time

With regard to what is meant by "average" times, we ran into difficulty. An average can be thought of as being halfway between the maximum and the minimum time. It can be thought of as being the time taken for an "everage" move. And it can be thought of as being an everage of all the possible moves, forward and backward.

None of these figures is easy to get. Some of them, in fact, take ebout four hours of computer time just to check out. MAI informed us that they had checked all possible forward seeks on their own computer, and that the figure was just under 50 millisec. We accepted this statement, and checked it out against the charts themselves.

We noted the timing for a move of 67 tracks, which approximates an actual operating average. On the forward seeks, this showed as being 47.6 millisec. (MAI) and 48.5 millisec. (Memorex). On the reverse seeks, the times were 45.5 millisec. (MAI) and 44.2 millisec. (Memorex). All, therefore, were under the claimed average.

The Verdict

COMPUTERWORLD therefore thinks that the figures support the major claim that the MAI 2301 drive is faster than competitive drives. We are also of the opinion that the "average" access time of 50 millisec. is a justifiable claim.

The following figures were abstracted from the timing charts supplied by MAI and Memorex.

Number Of Tracks	2301 Time		2311 Time	
	MAI	Mem.	MAI	Mem.
FORWARD SEEKS				
001	011.0	011.0	020.1	018.5
050	043.0	044.1	066.6	065.5
067	047.6	048.5	071.8	069.6
100	054.4	055.5	085.0	083.6
150	065.9	066.8	105.6	105.0
200	076.8	077.7	128.9	125.2
REVERSE SEEKS				
001	011.5	013.1	018.3	018.0
050	041.5	039.6	060.6	059.2
067	045.5	044.2	066.0	064.7
100	054.4	052.8	079.3	077.7
150	067.4	066.1	099.3	098.8
200	080.8	079.7	119.1	119.3

Letters to the Editor

What Level of Braille?

To the Editor:

I was particularly interested in the article in the May 15 issue of COMPUTERWORLD which was entitled "Computerized Braille Translations Bring Faster Information to Blind." The IBM Corp. has produced a typewriter which has the character set to produce braille I. However our braille II is the level of this language which is in common usage today, and in which 99% of the output supported by the Library of Congress is produced. This is the level at which literally hundreds of braille abbreviations are used, whereas in the braille I level nearly all of the translation is on a one for one basis; i.e., one braille character for one English character (if English is the source language).

Does the MIT program produce braille II? If so, this is a tremendous breakthrough for our blind brethren.

D.D. Williams, Electric
System Planning Dept.
Baltimore Gas & Electric Co.
Baltimore, Md.

MIT tells us that its program does produce braille II. Ed.

'Hal' Unmasked?

To the Editor:

In reference to the film "2001", (CW, May 8) to see the *true* nature of "Hal," the computer, perform the following algorithm:

1. Write down the three letters H A L.
2. Underneath each letter, write the succeeding letter of the alphabet.

T.D.C. Kuch
Manager, Computer Center
Applied Data Research, Inc.
Arlington, Va.

Not a Korvette Special

To the Editor:

In the May 8 issue of COMPUTERWORLD the SJCC article indicated that the terminal display equipment used by the student group – the Resistors – "is available from Korvette, and a sign suggests you buy it on mom's or dad's credit card." The equipment is, of course, our CC-30 Communications Station. And while we have just announced a major leasing agreement with Transamerica Computer Company and our marketing organization is growing rapidly, I am sorry to report that even with a major credit card you cannot purchase our equipment from Korvette.

Incidentally, shortly after Carl Vanderbeek, our vice president of development, returned from a visit with the Resistors he received the attached postal card showing the equipment being used on-line from the living room of their advisor Claude Kagen. It is always a pleasure to have satisfied customers!

Dale Newberg
Marketing Administrator
Computer Communications, Inc.
Inglewood, Calif.

Keyboard to Tape Units Challenge Keypunches

This is the first in a series of articles on the new keyboard-to-tape units that will replace keypunches in many systems.

IBM's announcement of its Model 50 tape inscriber is important because it defines many unnecessary factors in keypunching. According to IBM, it is necessary to use a keypunch only when you need a turnaround document. That is, after originally punching and recording data, you will later want to punch additional data into the same cards. Examples: utility billing where the card is sent out, and repunched when it is returned with cash, inventory listings which become order cards.

This leaves many instances when keypunching is no longer the only way of doing things, even in the eyes of the world's largest keypunch manufacturer. Therefore, if you are presently doing any amount of keypunching, the announcement of the Model 50 is a clear statement that you should now re-examine your operation.

Here Are the Data Inscribers Already Announced

Manufacturer	Unit Name	Keyboard Style	Produces Computer Tape?	Price
Communitype	Communitype	Typewriter	No	$11,600 *
Honeywell	Keytape	Keypunch	Yes	7,250
IBM	Model 50 Inscriber	Keypunch	No**	9,900
IBM	Magnetic Tape/ Selectric Typewriter	Typewriter	No**	7,150
Mohawk***	1101 Data Recorder	Keypunch	Yes	7,200
Sangamo	Data Station	Keypunch	Yes	7,640
Tally	1021 Data Terminal 4021 Data Terminal	Typewriter Optional	No** Yes	10,800* 15,000

** Communication facilities are included in the price*
***Can be read into IBM 360s via special reader.*
****Mohawk also makes the NCR 735 Data Recorder.*

The April 25 issue of EDP Industry Report and Market Review summed up the situation this way: "With this action, of course, IBM has given the official stamp of approval to the keyboard-to-tape concept."

So, no matter how right you were when you installed that keypunch operation, times have changed. If you haven't the manpower for re-examination, request the necessary budget. Don't be shy. There's been a revolution. If you are thinking in terms of enlarging your keypunch operation, take another look at things before you do. Analyze the alternatives, even if it means spending more money. There are more alternatives today. What are they? How do they compare? When will they be available?

Tape Replaces Cards

The current crop of keypunch replacements have one point in common: they are all replacing cards with magnetic tape. This is not the only possibility. Univac has publicly demonstrated a smaller, more powerful magnetic card (CW, March 28, 1968), but this is not on the market yet.

The first unit to appear, and the one with the most operational experience, is the Mohawk Data Recorder (also marketed as the NCR 495). This unit uses a keypunch style keyboard to put on magnetic tape data which then can be read into a computer or transmitted along telephone wires. It takes a standard 10.5 inch computer reel and current models can handle both 556 and 800 bpi recordings.

Very much like the Mohawk in basic essentials is the Honeywell Keytape unit. Like the Mohawk unit, it uses a keypunch style keyboard and puts data directly on magnetic computer tape.

After the Mohawk unit came the Tally Data Terminal. This was designed as a communications unit rather than as a keyboard-to-computer system. The keying is done on a unit similar to a keypunch but the tape is not computer compatible. Tally uses a 1/4 inch tape at the remote sites. Tally now also makes unit that produces compatible tape.

Late last year Communitype introduced its basic unit, which is like a typist's desk rather than a keypunch operator's position. The tape, held on a cartridge, is placed in a drawer of the desk. The unit was designed to fit into office decor. Like the Tally, it was designed to send the day's data to a central point and to receive data from a central point, rather than to send data directly to the computer. Unlike Tally and most of the other units, it prepares hard copy of the data as it generates tape.

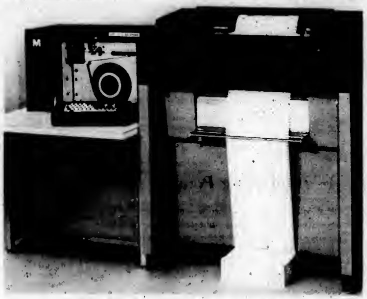
Latest Entry

The latest entry, which came at the same time as the Model 50, is the Sangamo Data Station which prepares computer compatible tape. The tape reel is in a desk drawer. It uses a keypunch styled keyboard, and like a keypunch, has two programs which guide the operator.

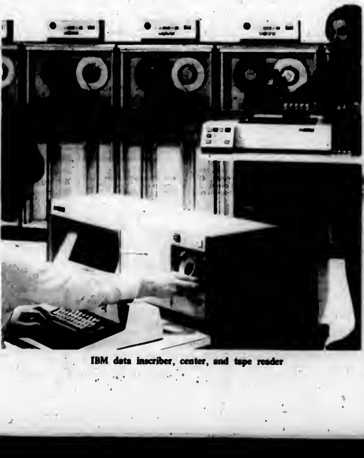
The Model 50 has no fewer than eight programs available, which is probably its major feature. It uses a standard keypunch keyboard and puts the data on non-compatible tape. It is partnered by a new unit, the IBM 2495, which can read this tape into most of the 360 computers.

Another unit – not greatly advertised at present – is the IBM Magnetic Tape Selectric Typewriter (MT/ST) which has been available for some years now. The new Model 50 uses the same MT/ST tape and the IBM 2495 can read MT/ST tape, making it possible to use a typewriter system to create the tape.

These, then, are the contenders. In next week's issue of COMPUTERWORLD we shall investigate the advantages these units offer over the keypunches they are attempting to replace.



Mohawk Data Recorder, left, next to a printer



IBM data inscriber, center, and tape reader

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Management Information Systems Available Soon

WHITE PLAINS, N.Y. – IBM has added, for 1969 delivery, three management information systems to the repertoire of the large IBM 360s (Model 40s with 131K or more). Two of the systems are new – the Information Management System/360 (IMS) and Customer Information Control System.

The third is the Generalized Information System (GIS), originally scheduled for release in January 1967, but then decommitted.

Information System

IMS/360 can make information about an organization's daily operations available to the people who need it, right in their own work areas.

For example, an engineer can use a terminal in his office to ask the computer for the latest specifications for a new part. At the same time, a production planner may use his terminal to relate a new product's design to the company's manufacturing and financial resources.

Users of IMS/360 can phrase their requests in coded, abbreviated messages. The system recognizes the code, calls on the appropriate stored program to produce the requested information, and transmits it back to the user's terminal.

Customer Control

The Customer Information Control System is designed for gas, electric, water, and telephone companies. It can move account records to a display station at the desk of a customer service employee. As she talks with the customer on the telephone, she can review the account's history, answer questions, update the record, and initiate any necessary action.

In addition, the Customer Information Control System can be used to expedite orders to start or stop service, reducing the transaction time. This includes having the computer transmit a work order to the field service location nearest the customer.

Generalized System

A businessman can get answers and information from System/360 by using the English-like statements of GIS to ask the computer a question. The information returned to him will be in the desired format and at the level of detail requested.

In addition to retrieving specific items of information, such as the work history of an employee being considered for promotion or the number of parts in an inventory, he may ask "what if" questions. A typical example: "What would be the financial impact if I gave my employees an extra holiday?"

In preparing the answer under the direction of the GIS program, the computer would call upon information from a variety of records stored in its memory. These might include salary data, production figures, and warehousing costs, computed to produce a single dollar figure representing the cost of an extra holiday to the company.

A discussion of the problems GIS has faced and of the attitude of various user groups toward these problems will be published in a later issue of COMPUTERWORLD.

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Contact: Business Information Systems, Inc.
Times-Chronicle Building
Jenkintown, Penna. 19046

BTAM USERS!

Simulator program called BTAM Simulator allows user to De-Bug System/360 Teleprocessing applications without actual terminal hardware and to by-pass communications with existing terminals – while checking out new applications. Developed by Programming Sciences Corporation/Int'l. Paper Company, Graphics Division, 90 Park Avenue, New York, N.Y. 10016.

Price: Upon Request

Contact: Lee Rydell
(212) 661-5540

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Rahway, New Jersey 07065

360/20 Documentation Aid

Program is designed to list and analyze Model 20 commercial applications. For each procedure it lists fourteen events, and analyzes seven of them. Some of the topics covered are: application category, program type, core use, run time, report distribution, and multi-procedure use. Implemented for 360/20 8K, written in RPG.
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Contact: Edward W. Helgesen
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1745 North Kolmar Avenue
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Course Reaches Small-Town Schools

ST. PAUL, Minn. – A new course in data processing is available to small rural schools which three years ago had neither time, money, nor manpower to teach a computer class.

The one semester course, "Introduction to Data Processing," costs little money since no actual computers or specialized teachers are needed.

Prior to this, only urban, suburban, and centralized rural schools could afford to rent the computers and pay the special teachers needed for automation courses.

Designed for Seniors

The course is aimed at high school seniors. The class familiarizes students with the jobs computers do, and with employment opportunities in the field.

Class material includes 250 detailed, colored, overhead projection transparencies which substitute for actual computers in illustrating data processing.

Recently, a small high school in Fairmont, Minn. – population 12,000 – became the first rural school to test the course. Reaction has been enthusiastic. The class has been incorporated into the school's 1968-69 curriculum.

No Special Teacher

"The class is organized in such a way that an instructor without previous experience in the data processing field can present the material with confidence," said Michael J. Huggett, who taught the first Fairmont class.

C.H. Hegdal, Fairmont Senior High School principal, said, "The geographic location of a student or site of a school must not be allowed to interfere with a student's capacity to compete in the world when school is out."

The course was developed by Ray W. Hass, data processing manager for the 3M Company here, and information on it may be obtained from 3M.

Pear's Book on Mag Recording Pays for Itself

BOOKS

Magnetic Recording in Science & Industry. Edited by Charles B. Pear; Potter Instrument Company, Plainview, N.Y. $19.50, Reinhold Publishing Corporation, New York.

This book costs less than a single reel of tape, but will undoubtedly save many reels in almost any computer room. It is intended to provide current and potential users of magnetic recording (which includes tapes, disks, and drums) with a reliable source of detailed information defining capabilities and limitations. It does its work well, particularly for tape users.

Some of the questions it answers are quite surprising. Did you know, for instance, that dropouts should really be known as "drop-ins"? The hole which occurs when a piece of the magnetic material comes off rarely affects the tape. But when a piece falls onto the tape it pushes the head away, reducing the signal strength, and causes the dropout.

Aluminium or plastic reels: is there a difference beyond the weight question? There is because the thermal coefficient of expansion at the hub matches that of polyester base film – if its an aluminium hub. But not in the case of most plastic hubs.

Tips even appear as to how to correct some types of errors, and how to know which types of tape may possibly be security risks. And these are not just tips, but fully documented details, contributed by authors from practically every company in the industry.

After these points have been duly noted, and thanks given for them, it is to be hoped that in a later edition (which seems, and hopefully is, inevitable) much more attention will be given to the problems of disk packs and standards. It is interesting to know that "Several dropout testers are available, but they are far from adequate to fulfill all needs, and that is customary for recording medium manufacturers, and many users, to design their own." But it would be even more interesting, and infinitely more valuable, to know in what way these testers are inadequate, and how a user can evaluate their results. – A.T.

COMPUTERWORLD

education

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ACM Council Adopts Policies, But No Budget

COMPUTERWORLD

societies

ATLANTIC CITY – The Council of the Association for Computing Machinery (ACM) met here to approve the budget adopted unanimously by the ACM Executive Committee. But the meeting ended without the council adopting a single part of it.

The council did, however, act on a number of policy points. The number of pages of the "Communications of the ACM" was decided upon. The post of director of publications was created "in principle."

Student chapters were created at seven institutions, including Princeton and American University. Seven regular chapters were chartered, including one each in Great Britain and West Germany. A committee was appointed to study student memberships and student chapter qualifications, under the chairmanship of L.H. Williams.

Because the budget was not adopted, many of the actions must be considered reversible.

Almost as many people attended the council meeting as attended the recent ACM forum here, and some of the same points were raised. The proposed ACM news publication was again questioned from the point of view that it might compete with existing commercial publications.

Other points argued were about the proposed optional cost of the "ACM Journal," a proposal considered by some as a concealed subscription cost increase. The council decided to substitute a "Survey and Technical Journal" for the "ACM Journal," as a benefit of membership in the first quarter of calendar year 1969.

The meeting was adjourned until May 28, just after the conclusion of the current postal balloting for new ACM Council members. An informed source said that the council chose the date so that it could complete its work and pass a budget before the new officers take over June 1. No indication was given as to what would happen if the council were unable to produce a quorum or to reach an agreement at the next meeting.

Too Much Nit-Picking

A neutral observer who attended the meeting felt that much of the discussion was unproductive and not well formulated. He felt that the objectors were nit-picking on budgetary details when they could have been handling complete policies.

"Instead of arguing 'yes' or 'no' about the publication," he commented, "they could have simply passed a resolution saying that the thing should not be competitive, if that was what they wanted. Then the matter would go back to the editorial board, and it could decide if it really wanted to run it. If the people really wanted to nit-pick, they should have put in three months work with the financial committee."

The council approved a "paid chapter and Sig-Sic secretariat." And, Sicart (Special Interest Committee on Artificial Intelligence) was renamed Sigart (Special Interest Group on Artificial Intelligence).

EDPeople

	IS NOW	AT	WAS	AT
Harry S. White, Jr.	Staff Member, Center for Computer Sciences and Technology	National Bureau of Standards, U.S. Dept. of Commerce, Washington, D.C.	Systems Analyst, Office of the Secretary	Dept. of Defense, Washington, D.C.
Lynn W. Gallup	Director, Engineering	Customer Engineering Div., Control Data Corp., Minneapolis	Manager, Peripheral Systems Design	Control Data Corp., Minneapolis
John W. Haanstra	General Manager	Information Systems Equipment Div., GE, Phoenix, Ariz.	General Manager	Advanced Development and Resources Planning Div., GE
Wallace K. Campbell, Jr.	Assistant Treasurer and Controller	Dynamics Research Corp., Stoneham, Mass.	Controller	Dynamics Research Corp., Stoneham, Mass.
Eugene J. Collins	Program Manager, Information Systems	Auerbach Corp., Washington, D.C.	Director, DM-1 Data Management	Auerbach Corp., Philadelphia
William Collins	National Sales Manager	Peripheral Systems Corp., Sunnyvale, Calif.	National Account Representative	IBM, San Francisco
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Lee Ryder	Director of Marketing	Programming Sciences Corporation New York, N.Y.	Vice President	R.E.T. Systems Corporation
Edward E. Hatter	District Manager	Varian Data Machines San Francisco, Calif.	Western Regional Manager	Adage, Inc.

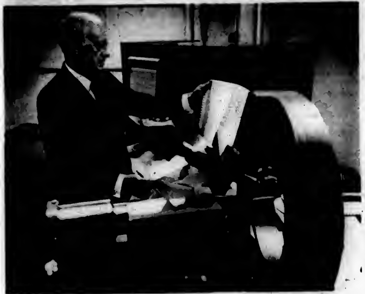
New System Aids Scientists

WASHINGTON, D.C. – Administrative, scientific, and data processing needs of the U.S. Geological Survey are served by a new earth science computer network that also provides services to the Interior Department. Mountains of data have already started moving daily across the network between four satellite computers in the West and Midwest, and a larger central computer in the nation's capital.

Geological Survey research programs being assisted by the new system include mapping of remote stretches of the country and cataloging of fossils uncovered in geological studies. The system is monitoring stresses in major earthquake producing faults, and searching for clues to new deposits of gold, silver, mercury, and other heavy metals. It is even mapping the surface of the moon and tutoring astronauts for lunar exploration.

Powerful Tool

The new computer network is "a uniquely powerful tool at the fingertips of our scientists and engineers," said Survey Director William T. Pecora. "For example, the vast accumulation of information required to deal with water scarcities and with pollution in the nation's watershed can be stored in the memory of the system," he said. "These essential data will be almost instantly accessible to local, state, and federal authorities seeking to manage water resources."



Dr. Howard T. Evans, Jr. checks the results of work performed on an x-ray diffractometer controlled by computer generated instructions.

Housed in the Interior Department, an IBM System/360 Model 65 is the central processing plant for the network. It handled over 8000 jobs last month, including 3000 from Geological Survey field offices. The computers communicate with each other over long distance leased telephone lines.

"With this advanced system" Pecora said, "personnel in field offices can use the larger computer as conveniently as though they were stationed here." He noted that before the network was set up, "personnel had to travel long distances and experience lengthy waits to get problems solved on a large scale computer."

Cards Used

Scientists at field offices who wish to use the big computer here load decks of punched cards containing problems into send/receive terminals which transmit the data to the central computer. Answers, when ready, are automatically sent back to the same terminal. The system processes data with such speed that field offices typically receive replies within hours.

The smaller IBM System/360 Model 20 computers that feed data into the Model 65 are located at survey facilities in Denver; Menlo Park, Calif.; and Rolla, Mo. A System/360 Model 30 is located at Flagstaff, Ariz.

Subsurface Traps

Subsurface geological trap problems may be solved by a new digital seismic data processing center that has started operations in Denver. The facility is expected to serve oil exploration clients in the Rocky Mountain region. Much exploration in that region depends on discovery of stratigraphic traps conducive to accumulation of oil and gas. The Denver center was opened by Texas Instruments Inc.

Carl Diesen, left, director of the Geological Survey's computer center, and Willard Hazen, a shift supervisor, review a map of the new computer network..

Digital seismic exploration techniques were first introduced to the geophysical exploration industry in 1964. Such techniques are now used widely by oil companies and geophysical service contractors, and in 1967 accounted for about half the petroleum industry's expenditures for seismic exploration.

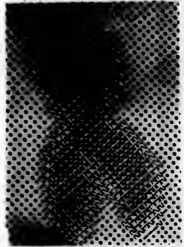
Computer Draws Pictures of Chromosomes

SILVER SPRING, Md. – A computer at the National Biomedical Research Foundation here is helping to explore the microscopic structures of human chromosomes for the causes of hereditary diseases, including forms of mental retardation and leukemia.

The new system will be used to investigate the chromosome characteristics of large numbers of people.

"With the computer's aid, cytogeneticists are working toward reducing the birth incidence of abnormal babies," said Dr. Robert S. Ledley, foundation president.

Microscopic studies, in recent years, have linked a number of human disorders to abnormalities in chromosomes, the tiny particles in each body cell that determine hereditary traits. Use of the computer has increased the speed of chromosome analysis as much as 500 times over manual methods.



Computer printed "digital replicas" of human chromosomes are helping scientists explore the causes and effects of hereditary diseases and abnormalities.

Chromosome analysis by computer was first pioneered by Ledley as far back as 1959. The step up to a faster, more powerful computer will lead, Ledley believes, to a refinement of the process for clinical use by physicians.

The emphasis will continue to be on research, both in cytogenetics and ultimately in spreading automated analysis of photos to a new range of tasks, including a look at nerve cells, muscle fibers, and bone x-rays.

High on the list of priorities for the technique are:

Analyzing the way chromosomes are altered by diseases such as leukemia, which attacks blood cells, as a promising means of helping to develop a cure.

Investigating chromosome defects that result in abnormalities such as mongolism and other hereditary diseases.

Examining animal chromosomes as a means to test new vaccines and drugs (frequently, adverse reactions show up in chromosomes).

Studying the effect that atomic radiation and the aging process have on human chromosomes.

The automated studies are expected to lead scientists to a better understanding of the role chromosomes play in the total life process.

How It Works

The system works this way: Photographs of body cells (usually from blood samples) are taken through a microscope. These photos are then converted into digits for analysis at the computer.

The special "digitizing" device developed by the foundation, Fidac (film input to digital automatic computer), can scan some 400,000 separate points on a photo in three-tenths of a second. It transfers each of these points (like dots in a newspaper photo) into the computer by measuring its degree of lightness or darkness, and giving it a number value from 1-15.

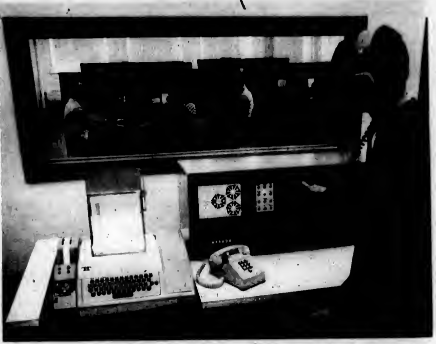
The IBM 360/44 evaluates the chromosome photograph by the numbers. When the computer detects a chromosome, it traces its outline, measures it length, area, and arm-length ratio. When it has finished a frame, the computer goes back over and classifies the normal 46 chromosomes in a human cell into pairs.

The computer reports its findings to researchers in the form of comprehensive statistical tables prepared on its high speed printer. Previously, laboratory technicians or doctors had to prepare these tables painstakingly by hand. The printer can also produce greatly enlarged digital reproductions of the exact shape of the chromosomes and other microscopic subjects under study.

The IBM 360/44 is especially designed for scientific problem solving. The foundation plans to use the machine for general biomedical research as well as for its pattern recognition application.

Digital reproductions of the chromosomes in a human cell, foreground, and of the structure of a hand, both computer generated, are discussed by Dr. Robert S. Ledlay, left, president of the National Biomedical Research Foundation, and Louis S. Rotolo foundation executive treasurer.

Information Retrieval Helps Students



The Ampex random access audio system at the Oak Park River Forest High School. Console display/keyboard unit permits the supervisor to take over control, share control with the student, or completely disable a given position.

OAK PARK, Ill. – The first true random access audio information retrieval system in the United States, employing a digital computer through which all control and status information must pass, has been installed at the Oak Park and River Forest High School here.

When fully programmed, the system will permit students to receive any one of 224 recorded 15 minute programs in less than 30 seconds. Maximum student waiting time under any condition is 59 seconds.

All control logic for the system is handled by the computer. Student requests enter the computer and initiate the automatic sequence which causes the audio switch to select, the appropriate tape to start,, the high speed transfer to take place, the change of tape speed to occur when transfer is finished, the sensing of the status of all system components, and the transmission of appropriate status signals to the student keyboard lamps.

Computer diagnostics are provided to check the system daily.

Student presses the play button to begin listening to a lesson at the Oak Park/River Forest High School.

Should a malfunction occur, be it a transistor or a broken tape, the faulty unit may be identified by built-in diagnostic procedures.

The present installation is the first step of a scheduled three-phase instructional resource center being engineered and installed by the audio/video communications division of Ampex Corp. Future phases will extend the system to include random access video instructional material and provide additional student carrels.

No Waiting

"In previous quick access audio systems," said Thomas E. Davis, Ampex group vice president, "a student wanting to listen to a lesson already dialed by another student had to wait until the lesson was completed, or begin listening after the program was under way. With this sytem, each student receives lessons promptly from the beginning.

"This is possible because of a high speed transfer of program material to each student's own buffer, or individual recording unit. To transfer a 15-minute program from the master unit takes less than 30 seconds. After the lesson has been transferred to the student's buffer, it can begin playing immedistely."

At the heart of the system are seven master tape transports, each with 32 tracks. A complete 15 minute lesson is recorded on each track, resulting in 224 always available lessons. Programs are transferred from the master unit to the student buffer at 120 ips and replayed for the student at 3 ips.

The system provides students with independent study material quickly and efficiently.

The $358,000 installation contains 25 student learning booths. From each booth, a student may select any program in the master system. Each lesson is up to 15 minutes long. Subjects include business education, mathematics, science, foreign languages, English, and history. The system supplements rather than replaces classroom activities.

Students Control System

All controls are touch-button. Display lights indicate the mode of operation of the student system, such as play, record, stand-by, recue, and clear. From each carrel, students can ask for assistance from the instructor at the control center.

Students listen to lessons, take notes, and record their own remarks without interference. The student portion of the system consists of five consoles each containing five individual student positions. Each position has a headset for listening, a microphone for recording or talking with the instructor, a card telling how to use the equipment, and a directory of programs.

To obtain a lesson, the student presses the "clear" button and selects the program number.

The maximum waiting time is less than one minute if one person selects a program, or if 25 select a program. The high speed transport will transfer a program to any number of student buffers simultaneously.

The school is planning limited use of the system for the remainder of the school year. Full use will begin in September.

Computerized Stadium Scoreboards Being Installed for Athletics

OAKLAND, Calif. – The world's first computer controlled stadium scoreboards are being manufactured for the Oakland Athletics. The scoreboards are being installed in right and left field on light standards rising from behind the bleachers in the Oakland Alameda County Coliseum, the new home of the Athletics. One board will be operational early in the 1968 baseball season; the other will be operational later in the season.

The system will tell the story of the game more quickly, more completely, and more vividly than ever before. Each of the scoreboards will be 126 feet long and 24 feet high and will have a display area of over 2400 square feet.

The left field "animation" board, consisting of a field of 23,000 light bulbs, will show animinated cartoons and other graphics at speeds comparable to moving pictures and with the size and impact of a wide screen movie.

It also will display informational messages as well as messages about scoring decisions, player records, and out-of-town games. These messages can be "rolled up," "marched" across the board, and shown in characters from 2 to 24 feet high.

The right field scoreboard will display information about the game in progress. This will include balls, strikes, outs, line score, batter's name, and his current batting average, updated by the IBM 1130 computer after each time at bat.

All player and team statistics, such as hits and RBI's, will be revised as action occurs on the field and can be displayed in a choice of formats for the first time in any stadium.

The scoreboard system will be controlled by two operators at a console in the press box by keying in a simple code. Statistical information, as well as animation used more than once, will be stored and will be available almost instantaneously.

Information Concepts Inc. of New York City developed the computer systems design and programming and the Datex Division of Conrac Corp. of Duarte, Calif. is responsible for the electronic design and manufacture of the system.

Both scoreboards will be used for football and soccer later in the year."

One of a matched pair of the world's first computer-controlled stadium scoreboards to be installed in the new Oakland Athletics' Coliseum. The boards will display animated cartoons and other graphics with the speed and size of a wide-screen motion picture.

Computer Organizes 10 Shows A Week for 70,000 Dog Owners

DETROIT – The computer has gone to the dogs.

Bow Dog Show Organization here is using a computer to organize and schedule dog shows across the country at the rate of up to 10 a week. The system is the only one of its kind in use among the half-dozen organizations that specialize in organizing dog shows.

The computer contains the names of 70,000 dog owners across the country who have varying degrees of interest in showing their registered pets. Owners are filed by the IBM 1130 computer system according to their geographical location, their willingness to travel, and the breed of dog. Periodically, cards are mailed to each dog owner for the purpose of updating records.

For each show, the firm must send out premium lists and entry forms to dog exhibitors within their prescribed traveling distance, print show catalogs, schedule judges, and make all the necessary physical equipment arrangements for the show.

After the computer printed mailings have been made to prospective entrants, the returned entry blank and entry fees are audited by the system and a completed catalog of participants prepared.

The computer is programmed to produce a punched tape used to drive hot metal line casting machines in setting type for the catalog of up to 5000 entrants for each show.

Display May Have Many Applications

The dazzling array of new general purpose hardware coming on the market tends to obscure the development of hardware especially designed for a particular job.

The very piece of hardware you need — and can't find on the general market — may already exist. But because it was developed for another, unrelated task, you might never hear of it.

COMPUTERWORLD is, therefore, [illegible] a new, [illegible] feature called [illegible]. In it we will [illegible] special purpose products that would appear to have many applications beyond the one for which the hardware was originally designed.

Our aim is to provoke thought — and possibly to help you solve a problem or [illegible] an opportunity that had not occurred to you.

The Bunker-Ramo display for the new telequote system looks very much like the traditional display of ticker tape that brokers are used to reading. In fact, however, it is very different.

The new display has no moving parts and maintenance is estimated at two hours a year. In addition, it has a variable intensity control and comes in 4-1/2 foot length modules so that depending upon the speed of the data to be displayed, you can show whatever length is necessary. (The readability of a message is dependent upon the length of time the eye must rest on it. Therefore, a slowly moving tape can be read in, say, two modules or nine feet, whereas a really fast one might require four modules.)

Present Use

Stock exchange trading reports flow across the new Teletrade display unit.

In its present form the display is connected to the New York Stock Exchange ticker and uses a related character set. This consists of the upper case characters, but not the lower case, a few special symbols and numerics which, for readability purposes, are put below. The format is designed so that it simulates the display that brokers are currently used to. (Influential brokers don't want to change their working habits, and it is very nice to have a display that you can read over the top of your glasses.) In fact, this is a case of a new product which hopes to be successful by being a modern simulation of an old technique.

Greater Potential

But, our interest in this column is not in the display's ability in the broker's office. The available character sets are quite unrelated to the limited one used here. Any character set and even different matrix sizes can be used to make up the characters. This is an inexpensive operation, using standard logic cards.

What we are interested in is the fact that here is a display with minimum maintenance suitable for use for large areas.

The display can be directly from a computer, or can be run off-line from magnetic tape, or can be fed by a combination of these methods. Information on the display can be kept quite indefinitely (It is the type of register which simply "falls off" the other end). Its price is $175 for a 9 foot length (2 modules) and $75 for each additional 4-1/2 foot length.

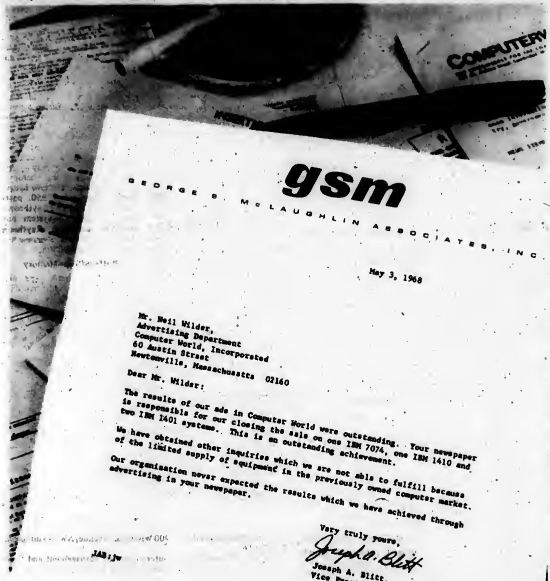
Suggested Other Uses

The question we are asking is: Does this have any attraction for some new type application in your area? Will it, for instance, allow you to perform some crowd control? Airports might have application — or schools. It doesn't seem to be particularly useful for advertising purposes, such as in stores, because it is silent. But it is moving and might be useful to coordinate or give further details of 15 minute sales.

In point of fact, the display has all the necessary attributes to pose real questions to a modern data processing manager. The fact is, now that we have multiprogramming, any data processing manager should be checking the new products that come out to see whether there is something in them which will allow him to serve his company or his employer better — whether or not these are the advertized uses of the product. He should not be circumscribed by the immediate things he has got to do. Multiprogramming allows a system to be effectively able to use more areas properly — and it is up to the data programmer to lead.

How could this Bunker-Ramo display help you to lead?

IBM 360 "A LARGE MIDTOWN FIRM WITH AN ESTABLISHED EDP DEPARTMENT OFFERS 1 OR 2 SHIFTS OF COMPUTER TIME. THE MACHINE IS THE NEW IBM 360/25, LARGE CORE, TAPE, AND DISK. SOFTWARE CAPABILITY INCLUDES AUTOCODER, ASSEMBLER, RPG, COBOL, FORTRAN, PL-1. FULL 1401-1440-1460 COMPATIBILITY. IMMACULATE CONDITIONS, GOOD ACCESS, AMPLE SPACE. CALL SYSTEMS GROUP 687-1985."



gsm
GEORGE S. McLAUGHLIN ASSOCIATES, INC.

May 3, 1968

Mr. Neil Wilder,
Advertising Department
Computer World, Incorporated
60 Austin Street
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Dear Mr. Wilder:

The results of our ads in Computer World were outstanding. Your newspaper is responsible for our closing the sale on one IBM 7074, one IBM 1410 and two IBM 1401 systems. This is an outstanding achievement.

We have obtained other inquiries which we are not able to fulfill because of the limited supply of equipment in the previously owned computer market.

Our organization never expected the results which we have achieved through advertising in your newspaper.

Very truly yours,
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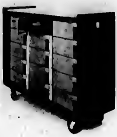
New Products

Small KM-220 Computer Has Variety of Options



BSC Disk Pack Dray

A general purpose computer system for use by small business firms and departments of larger companies is now available for $15,000, plus the price of optional features, tailored to the user's requirements. Typical applications of the new KM-220 are invoicing, inventory control, accounts receivable, sales analysis, route accounting, accounts payable, payroll, and general accounting procedures. Optional features include conditional branching, subroutines, looping, and comparison logic functions. Also available are additional program readers and an 80 step program card reader. For an additional $1500 each, a 64,000 character, randomly accessible memory may be added. K & M Electronics Co., Inc., 109 Hopkins Pl., Baltimore, Md. 21201.

KM-220 general purpose computer

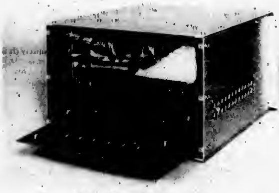
Swing Out Compartmenta

A heavy duty Disk Pack Storage Dray, mounted on oversized wheels, has been designed to store 15 disk packs in individual swing out compartments, each separately numbered with space for identifying the contents. Opening the compartment automatically puts the disk pack within easy reach. Size is approximately 22" x 42" x 55". Business Supply Corp. of America, 475 Fifth Avenue, New York, N.Y. 10017.

BSC 007 portable card punch

Portable Key Punch

A portable hand punch with a standard keyboard of 15 keys and requiring no electrical outlet has been designed by a British firm – International Computers, Ltd. – for hand punching cards at the work location. The BSC 007 Hand Punch is priced at $275.00 f.o.b., Princeton, New Jersey and is being marketed in the United States by Business Supplies Corp. of America, 475 Fifth Avenue, New York, N.Y. 10017.



Sanders Series 500 core memory

Series 500 Memories

A compact 8K x 40 bit random access core memory with a 2 microsecond full cycle speed and featuring an 800 nanosecond access time has been introduced by Sanders Associates, Inc. The Series 500 Core Memory Systems are designed for commercial applications with all digital computers. Size is 19" x 11" x 5-1/4. and contains three circuit module types. Memory Products Department, Sanders Associates, Inc., 95 Canal Street, Nashua, N.H. 03060.

Clary Datacomp program display unit

Display Unit

A program display accessory has been announced for use with the Clary Model DE-600 digital computer. The PD-3 Program Display Unit displays information on each programmed step as it is being executed by the DE-600. Both pieces of equipment use the same algebraic symbols and decimal numbers. Clary Datacomp Systems, Inc., 404 Junipero Serra Dr., San Gabriel, Calif. 91776.

Decade 70 general purpose computer

Scientific/Engineering Computer

A general purpose computer for scientific/engineering applications is available from Decade Computer Corp. for prices starting at less than $20,000. The Decade 70 has a 4096 word memory expandable to 16,384 words. Besides assembly, debugging, and utility programs, software includes the Chat engineering problem-solving language. Standard with the system are hardware multiply and divide, memory parity, automatic power shutdown and restore, cycle steal, direct memory access, memory protection, and programmable interrupt. Decimal arithmetic and variable word length are available. Decade Computer Corp., 7457 Lorge Circle, Huntington Beach, Calif. 92647.

DC Tachometers

A line of DC tachometers has been developed for systems that require highly linear speed/voltage relationship and low ripple performance. Able to be used as rate generators in velocity serves to achieve fast response, the tachometers are appropriate for computer tape transports needing efficient retrieval. Diehl Div., Singer Co., Finderne Ave., Somerville, N.J. 08876.

Electronic Calculator

Twelve accumulating storage registers and two independent adders are featured on the new Wang Model 362 electronic calculator. By combining the Model 362 with a Wang CP-1 Card Programmer, the scientific or engineering professional, or statistical or financial executive, can obtain answers to problems in real-time while sitting at his desk. Wang Laboratories, Inc., 836 North St., Tewksbury, Mass. 01876.

Source Data System

A new source data system which eliminates conversion delays and errors by recording information from remote input terminals directly onto magnetic tape has been introduced by Control Data Corporation. Called the 2025 Magnetic Tape Compiler, the system collects, verifies, and reformats data from CDC remote input stations and badge readers, then transfers the data to magnetic tape for subsequent processing. Data may consist of information on attendance, production time, inventory, or production control. Control Data Corp., 8100 34th Ave. So. Minneapolis, Minn. 55440.

Data Acquisition System

The new Raytheon 12 bit Miniverter Data Acquisition System includes a 16 channel multiplexer, a sample and hold amplifier, and control logic. The unit consists of nine integrated circuit modules installed on a connector block assembly and ready to plug into a company or customer supplied chassis. The new instrument, selling for $1950, costs one-third as much as Raytheon's earlier Multiverter system but does the same job. Raytheon Computer, 2700 S. Fairview St., Santa Ana, Calif. 92704.

Buffered Tape Memory

Buffered magnetic tape memories for use in industrial data processing areas, test instrumentation facilities, radar sites and telemetry centers, are available from Ampex. The Model BTM series memory can accept asynchronous digital data, format the incoming information, and record the data in blocked and gapped form on computer compatible magnetic tape. It includes a standard Ampex digital tape recorder, magnetic core memory, control logic, operator control panel, DC power supply, and equipment cabinet. Ampex Corp., 401 Broadway, Redwood City, Calif. 94063.

calendar

May 20-23, Washington, D.C. – "Data Communications for Management Control." Contact: The American University Center for Technology and Administration, 3900 Wisconsin Avenue, NW, Washington, D.C. 20016.

June 3-5, Chicago – "Computer Operation Management and Control." Contact: Brandon Systems Institute, 1611 North Kent Street, Arlington, Va.

June 4-5, Los Angeles – "Management Standards for Data Processing." Contact: Brandon Systems Institute, 1611 North Kent Street, Arlington, Va.

June 6, Cincinnati – "Computer Graphics I." Contact: James M. Adams, Jr., Director of Education, ACM, 211 East 43rd Street, New York, N.Y. 10017. (Also June 7, Detroit.)

June 13-14, New York – "Top Management Control of EDP." Contact: Automation Training Center, Box 3085, Scottsdale, Arizona 85257.

June 10, New York – "File Structures for On-Line Systems." Contact: J.M. Adams, Jr., ACM, 211 E. 43rd St., New York, N.Y. 10017. (Also, June 11, Chicago; June 13 Los Angeles; and June 14, San Francisco.)

June 12-13, Washington, D.C. – "Decision Tables: Principles and Applications." Contact: Brandon Systems Institute, 1611 North Kent Street, Arlington, Va. 22209.

COMPUTERWORLD financial

L-T to Acquire Exquisite Form

NEW YORK – Levin-Townsend Computer is seeking to enter the apparel field by acquiring control of Exquisite Form Industries, Inc., a leading manufacturer of women's foundation garments. The computer leasing company's president, Howard Levin, has confirmed that negotiations are under way.

Levin said his firm is negotiating an option to buy up to 80%, or approximately 7.3 million shares, of Exquisite Form's outstanding shares currently held by that company's president, Garson Reiner. Levin said the talks are "proceeding smoothly" and that a transaction could evolve before June 1.

According to Levin, the proposed diversification move "makes a great deal of sense." Exquisite is also involved in the Florida land business, as is Levin-Townsend, and distributes films.

In the past few weeks, rumors have been circulating that Levin-Townsend was involved in negotiations, but Milgo Electronics was supposed to have been the other party involved. Monro A. Miller, Milgo's chairman and president, denied that his peripheral equipment company was bargaining with Levin-Townsend. Milgo's stock jumped 66% just two weeks ago.

For the fiscal year ended March 31, Levin-Townsend reported operating income of $3.9 million, or $2.81 a share, on revenue of $14 million. The company recently proposed a 3-for-2 split for its stock which is selling in the high 70s.

Exquisite Form earned $500,000 on sales of $15 million during the first half of fiscal 1968. Those results were down from a year earlier when the company earned $709,000 on sales of $15.7 million. Exquisite Form's stock has been selling in the $6-7 range.

CSC, Digitek, ECPI Report Earnings Gains

Financial Items

LOS ANGELES – Fletcher Jones, president of Computer Sciences Corp., has announced a 94% increase in earnings for the fiscal year ended March 29.

Earnings rose to $3,304,000 or $.76 per share from $1,704,000 or $.40 per share in 1967. Earnings for the year just ended include $842,000, or $.19 per share, from the sale of an interest in a proprietary product.

Revenues increased 38%, from $38,860,000 in 1967 to $53,549,000 in 1968.

These are preliminary results and are subject to audit and year-end adjustments.

LOS ANGELES – Digitek Corp. has reported earnings of $52,000 for the nine months ended February 29, vs. a loss of $530,065 for the same period in 1967. Revenues rose from $741,892 in 1967 to $856,062 in 1968.

Operating results reflect the February, 1968, acquisition of Measurement Analysis Corp., a computer software, engineering, and research company. According to Digitek president James Dunlap, "The acquisition of MAC for 196,800 shares of Digitek common stock approximately doubles the company's size. It greatly strengthens our stability by broadening our customer base, and increases our potential by opening up important new markets."

NEW YORK – Rising income on declining revenues has been reported by Electronic Computer Programming Institute.

Results for the first quarter ended March 31 show revenues of $756,742, down 15% from the 1967 figure of $891,049. Earnings, however, increased 39%, from $91,210 in the 1967 period to $126,737 in the latest period. Earnings per share were $.17, up from $.12.

CHICAGO – Dearborn Computer has reported results for the latest quarter and six month period.

Earnings stood at $161,000, or $.22 per share, and revenues at $1,232,000 for the quarter ended April 30, 1968.

Earnings for the six months ended on that date amounted to $262,000, or $.40 per share, on revenues of $1,897,000.

Comparable figures for last year are not available because the company did not begin active operations until June of last year.

MAYNARD, Mass. – Digital Equipment Corp. has announced plans to expand its main manufacturing facility here by 50%. Total floor space will soon equal 900,000 square feet, a 1000% increase over the original 9000 feet the company occupied when it started operations in 1957.

DEC's computer production operations are housed in what once was a textile mill turning out blankets for GIs.

1004 Panels and Wires
13-1004 Panels . . . $20.00 ea.
5 Panels wired for machine . . . $35 ea.
277 Bundles wires never used . . . $2.00 ea.
16 Bundles squids never used . . . $7.00 ea. Retail value of $3,450. Entire Lot – $820.
Box 2201 Computerworld

WU Trading Heavy; CSC Denies Rumor

NEW YORK – Active trading of Western Union stock continued as attempts, and rumors of attempts, to capture portions of the communications company sparked the action.

On Wednesday a large block of 110,000 shares of Western Union changed hands at 44-1/2. The stock's volume of 213,200 placed it third in the most actively traded list on the New York Stock Exchange. The stock ended up at 44-3/8, up 5/8.

On Thursday some 199,100 shares changed hands, again making it the third most active stock on the Big Board. It wound up the day at 45, up 5/8, after climbing to a 1967-68 high of 48.

Helping to spark the activity was a recurring rumor that Computer Sciences was interested in acquiring a sizable position in Western Union. This report eventually was denied by Fletcher Jones, president of the West Coast-based computer software company, who said, "There are no negotiations under way with Western Union, and none are planned."

Earlier this month, University Computing announced plans for an offer of 750,000 Western Union Telegraph shares at $44 per share, nearly 10% of the company's common. At the time, University Computing said it viewed its offer as "an investment," but many Wall Streeters believe the action is the first step in a planned takeover of the company.

Several stumbling blocks seem to be in the way of the proposed partial, and possible total, takeover of Western Union. The $44 tender offer of University Computing would seem to offer little incentive, based on the current market value of Western Union shares.

A New York state law prohibits any concern from acquiring or holding 10% of the voting stock of a telephone or telegraph company without the approval of the Public Service Commission.

The Federal Communications Commission no doubt also is keeping a close eye on the progress of moves to acquire Western Union.

To some, Western Union's problems would seem to make it less attractive as a potential acquisition. The company has had less than spectacular sales and performance over recent years, and the "turnaround" which some analysts have predicted has yet to materialize. Potential problems may also stem from labor negotiations and heavy capital requirements for expansion. In addition, a $37 million lawsuit against the company was filed by Law Research Service, which charged that WU failed to provide promised computer services.

In the meantime, Western Union is not sitting on the sidelines like a wall-flower, but is instead, trying to make itself more attractive. It, too, is negotiating for an acquisition – of AT&T's TWX system.

FRB Wants Say In OTC Credit

WASHINGTON – The Federal Reserve Board, which currently regulates the margins available for purchasing of stocks listed on the securities exchanges, has asked the Senate Banking Committee to extend its jurisdiction to include stocks traded over-the-counter.

J.L. Robertson, vice chairman of the board, said that if the bill is passed, the board would expect to limit the amount of credit a bank could extend, according to the market value of the unlisted securities. He added, however, that such action wouldn't necessarily reduce the total amount of credit available for purchase of these securities, because the board could let brokers and dealers extend credit for the purchases.

Richard B. Walbert, president of the National Association of Securities Dealers, endorsed the bill but stressed that the NASD didn't expect that most over-the-counter brokerage firms would establish margin accounts for customers because of the expense involved.

According to Robertson, the controls would affect only a relatively small number of stocks. He said that "safeguards against the excessive use of credit in the O-T-C securities market are still badly needed to round out the protection afforded the public by margin regulation of a volatile securities area."

New Registrations

COMPUTER APPLICATIONS INC., 555 Madison Ave., New York, a company engaged in software development and other computer-oriented services, filed a statement to register some 28,000 common, to be offered from time to time. Proceeds from the offering, with the price to be set by amendment – maximum $25.75 – will go to selling stockholders. The underwriter has yet to be named.

FEDDERS DATA CENTERS, INC., 307 S. Sharp St., Baltimore, a company which operates computer service centers, filed to register some 120,000 common. Proceeds from the offering, at $4.50 per share, will be used to repay debts, acquire equipment, and furnish working capital. The underwriter is Packer, Wilbur & Co., Inc., 39 Broadway, New York.

LEASCO DATA PROCESSING EQUIPMENT CORP., One Linden Place, Great Neck, N.Y., a company which leases data processing equipment filed a statement to register some 60,000 outstanding common to be offered from time to time. Proceeds from the offering, with the price to be set by amendment – maximum $147.375 – will go to a selling stockholder. The underwriter has yet to be named.

PROGRAMMING SCIENCES CORP., 90 Park Ave., New York, a company which provides computer programming services, filed to register some 80,000 common. Proceeds from the offering, at $7.50 per share, will be used for expansion and will furnish working capital. The underwriter has yet to be named.

C.C.S. to Cut Stock Handling By 75%

NEW YORK – The long awaited Central Certificate Service, a computerized system expected to eliminate up to 75% of the present handling of stock certificates by brokers, was put into operation last week by the New York Stock Exchange.

Limited activation of the system, which utilizes an IBM 360/50, will begin with the inclusion of about 320 stocks whose corporate names start with letters A through C. These stocks account for about 30% of the exchange volume. During this initial period, clearing members of the exchange will be able to deposit and withdraw shares from the system, and issue instructions for transfer of shares into customer and firm names.

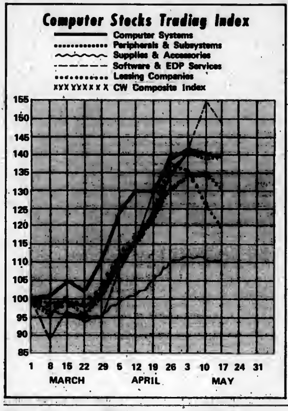
Full activation, expected to start in late June, will mark the beginning of the main function of C.C.S. – the delivery of shares between clearing firms through computerized bookkeeping entry. The CSC computer will keep a record of stock held in central deposit for each clearing firm. Upon instruction to deliver shares, the computer merely subtracts shares from the account of the delivering firm and adds the same number of shares to the account of the receiving firm. Thus no stock certificates need be physically moved. Brokers will also be relieved of the burden of storing, inspecting, and counting stock certificates.

Many brokers view the system as perhaps the most important single step in resolving the problem of back-logged paperwork which has plagued the financial community since last summer. Earlier this year, stock exchanges went on shortened sessions for six weeks to give brokerage house employees additional time to deal with the paperwork burden.

The exchange plans to add stocks to the system steadily until about 1200 Big Board issues are involved by the end of this year. Starting in early 1969, plans call for including issues traded on the American Stock Exchange, followed by 200 to 300 leading stocks traded in the over-the-counter market.

Operating costs for the system are expected to run about $8 million a year, with participating firms bearing the expenses. Developmental costs for the system, which grew out of a study initiated in 1965, amounted to about $5 million.

COMPUTERWORLD financial



Index Down 2%; SCC Up 40%; Levin Off 16%

(Continued from Page 1)

sector. SDS dropped 13% to 142. Control Data lost 9% to 141-1/4; Systems Engineering Labs declined 8% to 28; Burroughs and Honeywell were off 7%; NCR was off 6%.

Fabri-Tek made the only substantial gain among the six stocks in the Peripherals and Subsystem sector which moved higher last week. The stock was up 19% to 13-7/8 on news that its net loss for the latest fiscal year was half the loss suffered in the previous year. Next largest gain was made by Recognition Equipment, which was up 3% to 87-1/2. Bolt, Beranek & Newman, continuing a decline started a week ago, was off 12% to 19-3/4. Tally Corp. fell 9% to 46 and Calcomp was off 7% to 38-3/8. Eleven other stocks in the sector lost less ground.

The Supplies and Accessories sector was the only one with more gainers than losers. Moore Business Forms rose 6% to 31-3/4. Adams-Millis, whose stock recently split, moved up 5% to 27-1/4. The 3M Company gained 4% to 108-5/8 and set a new high in the process. Gains made by other stocks amounted to less than 3%. Memorex, the biggest gainer in the sector a week ago, lost 10% to 66 last week. A similar loss was suffered by Acme Visible. Wabash Magnetics was off 5% to 18-3/8. Standard Register remained even for the second week in a row. The stock has lost 22% since March 1.

National Computer Analysts lost 13% last week after gaining 57% the previous week. Applied Data Research was also off 13%, to 24. TBS Computing Centers continued to decline. The stock was off 10% last week and is 35% below the March 1 base price. University Computing, seeking a 10% slice of Western Union, was off 9% to 101 during the week. Computer Sciences, which had been rumored to be interested in Western Union, gained 12% to 52. The company also reported a 94% jump in earnings for the fiscal year ended March 29.

Losers outnumbered gainers four-to-one in the Leasing sector. Data Processing Financial & General led the list with a 17% decline to 120. Levin-Townsend, which this week revealed negotiations are underway to acquire a foundation garment company, was off 16% to 72. Dearborn Computer declined 14% to 29-3/4 while DPA Inc., National Equipment Rental, and Randolph Computer each lost 10%. U.S. Leasing, up 6%, was the biggest gainer in the sector for the second week in a row. The only other gainers were Management Assistance, up 2% to 12, and Datronic Rental, up 1% to 11-1/2.

COMPUTER STOCKS: TRADING SUMMARY

Week Ending May 17, 1968

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	COMPUTER SYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
NYSE	163 3/8	220–157	200 1/2	• Burroughs	– 16	– 7.39	+ 22.72
NYSE	67 3/4	101– 65	78 3/4	Collins Radio	– 1	– 1.26	+ 16.24
NYSE	101 1/2	160– 95	141 1/4	• Control Data	– 14 1/2	– 9.31	+ 39.16
AMSE	102	160– 95	135 3/4	• Digital Equipment	– 5 1/2	– 3.89	+ 33.09
NYSE	87 1/4	100– 84	90 7/8	General Electric	– 5/8	– 0.68	+ 4.13
NYSE	60	84– 59	83 7/8	Hewlett-Packard	+ 1	+ 1.21	[illegible]
NYSE	98 1/8	[illegible]	120	• Honeywell	– 10	– 7.57	[illegible]
NYSE	577	701–[illegible]	600	• IBM	– 21 3/4	– 4.10	[illegible]
NYSE	103 7/8	141– 99	128 1/2	• Nat Cash Register	– 8 1/4	– 6.08	+ 23.71
NYSE	[illegible]	[illegible]	50 3/8	RCA	– 2 3/8	[illegible]	[illegible]
NYSE	46 7/8	106– 73	95	Raytheon	– –	– –	+ 21.41
OTC	22 1/2	59– 20	59	• Scientific Controls Corp.	4 16 7/8	+ 40.06	+ 162.22
NYSE	118 1/8	172–108	142	• Scientific Data	– 22	– 13.41	+ 20.21
NYSE	43	63– 42	33	• Sperry Rand	– 2 3/8	– 4.72	+ 17.78
OTC	22 1/2	33– 20	28	• Systems Engineering Labs.	– 2 1/2	– 8.20	+ 24.44

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	PERIPHERALS & SUBSYSTEMS	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
NYSE	58 3/8	80– 32	68 1/4	Addressograph-Multigraph	– 4 1/8	– 5.70	+ 16.92
OTC	21	38– 21	50	Alphanumeric	– 2	– 3.85	+ 138.09
NYSE	29	37– 26	30 7/8	Ampex	+ 1/2	+ 1.65	+ 6.46
OTC	17 1/4	27– 16	19 3/4	Bolt Beranek & Newman, Inc.	– 2 3/4	– 12.23	+ 14.49
AMSE	13 1/2	19– 12	15	Bunker-Ramo	– 3/8	– 2.43	+ 11.11
AMSE	[illegible]	[illegible]	38 3/8	• Calcomp	– 3 1/8	[illegible]	[illegible]
OTC	15 1/4	23– 13	[illegible]	• Data Products	– –	– –	[illegible]
OTC	19 1/4	[illegible]	25	• Digitronics	– 3/4	– 2.91	[illegible]
OTC	[illegible]	[illegible]	46 1/2	• Electronic Memories	– 2	[illegible]	[illegible]
OTC	[illegible]	15– 9	13 7/8	• Fabri-Tek	+ 2 1/4	+ 19.56	[illegible]
OTC	34	56– 28	50	Gerber Scientific	– 2	– 3.85	+ 47.05
AMSE	16 7/8	45– 14	42 1/2	Milgo Electronics	– 2 1/8	– 4.76	+ 151.85
AMSE	113 1/8	195–108	183 1/4	• Mohawk Data Sciences	– 1/4	– 0.14	+ 59.17
OTC	74	136– 71	119	• Optical Scanning Corp.	+ 1	+ 0.85	+ 60.81
OTC	72	100– 64	100 1/2	Photon	+ 1 1/2	+ 1.51	+ 39.58
AMSE	25 5/8	38– 20	28	• Potter Instrument	– 1 3/8	– 4.68	+ 9.27
OTC	[illegible]	[illegible]	87 1/2	• Recognition Equipment Corp.	+ 2 1/2	+ 2.94	[illegible]
AMSE	16	[illegible]	[illegible]	[illegible]	+ 1/4	+ 0.96	[illegible]
NYSE	46 1/8	[illegible]	47 1/2	[illegible]	– 1/4	– 0.52	[illegible]
OTC	40 1/2	[illegible]	46	• Tally Corp	– 4 1/2	– 8.91	+ 13.58
NYSE	[illegible]	[illegible]	[illegible]	Xerox	[illegible]	[illegible]	[illegible]

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	SUPPLIES & ACCESSORIES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	48 1/2	64– 41	33 1/2	• Acme Visible	– 8	– 10.09	+ 10.31
NYSE	41	32– 19	27 1/4	Adams-Millis	+ 1 3/8	+ 3.31	+ 32.93
OTC	13 5/8	17– 13	13	• Baltimore Business Forms	+ 1/4	+ 1.69	+ 10.09
AMSE	27	36– 22	32 5/8	• Barry Wright	+ 1/8	+ 0.38	+ 20.83
OTC	27 1/4	33– 26	31 3/4	• Ennis Business Forms	+ 1/2	+ 1.60	+ 16.51
NYSE	84 1/8	[illegible]	108 5/8	• 3M Company	+ 4 3/8	[illegible]	+ 29.12
OTC	[illegible]	[illegible]	66	• Memorex	– 7 1/2	– 10.20	+ 13.79
TOR	27 1/4	33– 25	31 3/4	• Moore Business Forms	+ 1 3/4	[illegible]	[illegible]
NYSE	57 1/4	[illegible]	70	Nashua Corp.	+ 2	+ 2.94	+ 22.27
OTC	[illegible]	[illegible]	37	Reynolds & Reynolds	+ 1	+ 2.70	[illegible]
OTC	34 1/2	35– 25	27	• Standard Register	– –	– –	– 21.74
NYSE	37 3/4	44– 33	33 3/8	• Uarco	– 3/8	– 1.85	– 10.93
AMSE	14 1/4	22– 13	18 3/8	Wabash Magnetics	– 1	– 5.16	+ 28.93
OTC	25 3/4	36– 24	31	• Wallace Business Forms	– 1 1/4	– 3.88	+ 20.38

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	SOFTWARE & EDP SERVICES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	17	27– 14	24	• Applied Data Research	– 3 1/2	– 12.73	+ 41.18
OTC	15 1/2	24– 13	18 1/2	• Aries	– 1/2	– 2.63	+ 19.35
AMSE	47	66– 42	38	Automatic Data Processing	+ 1/8	+ 0.22	4 23.40
OTC	9	19– 6	18 1/2	• Brandon Applied Systems	+ 1/2	+ 2.78	+ 105.55
AMSE	22 7/8	43– 21	25 3/8	Computer Applications	– 1 1/4	– 4.65	+ 12.02
OTC	30	[illegible]	58	Computer Network	– 2	[illegible]	+ 93.33
AMSE	40	63– 32	52	• Computer Sciences	+ 5 3/4	4 12.43	+ 30.00
OTC	39	62– 37	37 1/2	• Computer Usage	– 1 1/2	– 3.85	– 3.85
OTC	36 1/2	58– 36	53	• Computing and Software	+ 1 1/2	+ 2.91	+ 45.20
OTC	12 1/2	20– 9	15	• Digitek	+ 1/4	+ 1.69	+ 20.00
AMSE	38 3/8	52– 26	42 3/4	Electronic Computer Prog. Inst.	– 3/4	– 1.72	+ 11.40
OTC	33	60– 32	35	• Informatics	– 3	– 3.17	+ 57.14
OTC	11 1/2	27– 8	24	• National Computer Analysts	– 3 1/2	– 12.73	+ 108.69
AMSE	31	43– 28	39 1/4	Planning Research	– 1 7/8	– 4.56	+ 26.61
OTC	9	15– 8	11 1/2	Software Systems	– –	– –	+ 27.77
OTC	20 1/2	22– 13	13 1/4	TBS Computing Centers, Inc.	– 1 1/2	– 10.17	– 35.37
OTC	63	111– 37	101	• University Computing	– 10	– 9.01	+ 60.32

EXCHANGE	BASE PRICE 3-1-68	1968 RANGE	CLOSING PRICE	LEASING COMPANIES	WEEK NET CHANGE	WEEK % CHANGE	% CHANGE FROM BASE
OTC	19 1/4	25– 18	24	Chandler Leasing	– 1/2	– 2.04	+ 24.67
AMSE	25 1/8	35– 21	29 3/8	• Computer Leasing	– 1 1/4	– 4.08	+ 16.91
OTC	12 1/4	19– 11	13 3/4	• Cyber-Tronics	– 3/4	– 3.17	+ 12.24
AMSE	106 5/8	184– 94	120	• Data Proc. Financial & General	– 24 1/4	– 16.81	+ 12.54
OTC	12 1/2	17– 11	11 1/2	Datronic Rental	+ 1/8	+ 1.10	– 8.00
OTC	20	[illegible]	29 3/4	Dearborn Computer	– 4 3/4	– 13.77	[illegible]
OTC	[illegible]	17– 12	14 3/8	• DPA, Inc.	– 1 5/8	– 10.16	+ 8.49
AMSE	28 3/4	43– 27	36 1/2	• GC Computer Corp.	– 2 3/4	[illegible]	+ 26.96
AMSE	98	[illegible]	142 1/4	• Leasco	[illegible]	[illegible]	+ 45.15
AMSE	48 7/8	[illegible]	72	• Levin-Townsend Computer Corp.	[illegible]	[illegible]	[illegible]
OTC	10 1/2	16– 7	9	• LMC Data, Inc.	– 1/2	– 3.26	– 14.29
OTC	10 7/8	16– 10	12	• Management Assistance	+ 1/4	+ 2.13	+ 10.34
AMSE	41 5/8	53– 25	42 1/8	National Equip. Rent.	– 4 3/4	– 10.13	+ 1.20
AMSE	38	64– 35	31 7/8	• Randolph Computer Corp.	– 5 7/8	– 10.17	+ 36.51
AMSE	10 7/8	18– 10	18 1/8	U.S. Leasing	+ 1 1/8	+ 6.62	+ 66.67

*Companies included in Computerworld's stock trading index for each sector.

Wall Street's View

ARD, CDC Seen Technically Strong

AMERICAN RESEARCH & DEVELOPMENT – F.S. Mosley's chartist notes that ARD appears to have the underlying strength necessary to continue upward in coordination with whatever further strength may develop in the general market. Agile short-term investors are advised to take advantage of consolidation at this point for increasing the size of lower cut commitments with the view toward accepting possible profits when more conclusive signs of rally termination appear.

WABASH MAGNETICS – C.B. Richard, Ellis & Co. reports that Wabash's rally from 13 extended to the 20 area and then backed off to the 18 level, where support seems to have been met. Richard, Ellis suggests that if this level can be held, a move to 22-24 might be anticipated. It warns, however, that traders should watch carefully for signs of increased activity.

MINNESOTA, MINING & MANUFACTURING – Reynolds & Co.'s chartist points out that 3M has scored an outstanding chart breakthrough on the upside. After trading within a range bounded by 80 and 95 for over a year, Reynolds reports the stock has now moved ahead into new high ground, a kind of behavior which it says usually signifies better price action ahead. Reynolds recommends 3M principally for traders at this time.

CONTROL DATA – Bache & Co. suggests CDC continues to reflect technical strength and recommends buying on dips for an initial move to the 165 area. Philips, Appel & Walden, on the other hand, recommends short positions be held.

Ecology of a Computer Programmer

Much has been written about computer programming management, and even more about the management of computer programmers. The report which follows, entitled "On the Care and Feeding of Programmers," makes a singular and enlightening contribution to that rarely discussed subject, the ecology of the computer programmer.

COMPUTERWORLD is grateful to Earl. Gilmore of Com-Share Inc., who took time out from time sharing to prepare the timely findings of the SFUR committee, and to Com-Share itself for its kind permission to let us share with you some moments of humorous and refreshing reading.

ON THE CARE AND FEEDING OF PROGRAMMERS

(A Preliminary Report)

Programmers (Homo sapiens Intelligencia Electronicus) are indigenous to most of the civilized world and are highly concentrated in the industrial complexes of the Western Hemisphere. Although their characteristics vary from sample to sample, certain consistencies have been noted by a committee of the Society For Useless Research that is being funded by a variety of Government Agencies.

This report contains a summary of the findings of this committee (hereafter referred to as The Committee) but does not purport to be exhaustive. The Committee is still analyzing data collected by thousands of Field Investigators. The conclusions from the analysis are not expected for another six hundred years, as The Committee determined that the use of EDP equipment might bias the results. This decision may be regarded as extreme by certain elements of the scientific community, but it is certainly an indication of the caution The Committee is taking to assure precise results. When taken to task on his non-utilization of computers, The Committee Chairman, Dr. Eric Von Nosemaster, said, "You don't study roses through rose-colored glasses. . . ." (His explication was drowned by the cheering applause of The Committee; the quotation appears in this report more for historical interest than as an example of Scientific Method.)

I

TO FIND A PROGRAMMER

Programmers are generally formed in late adolescence or early adulthood by a combination of interest, aptitude, contact with other programmers, and greed. Budding programmers are thus found in, around, and about educational institutions noted for their accumulations of hardware. Once the programmer is discovered and collected, he is generally placed into a large group of experienced programmers for acculturation. These groups are thickly scattered throughout industry and government and are fertile fields for the cultivation of programmers. No collector can long remain ignorant of these clusters since they spontaneously begin to advertise for other programmers the instant they increase their number beyond one or select a manager.

II

TO COLLECT A PROGRAMMER

Once a programmer has been located, his "collectability" is very much a function of the hunter's expertise. Although the techniques of successful hunters are highly secret, the following loose guidelines have been suggested by The Committee:

1. Set him at ease – assure him that his knowledge is extensive and that he is just the person you need. It is often considered appropriate to create a more relaxed atmosphere by offering him a drink.
2. Appeal to his intelligence – ask him how far he can count. Offer him that figure as a starting salary.
3. Be specific about advancement opportunities – outline all the weaknesses of his manager-to-be. (This may be overlooked if you are trying to collect the programmer for yourself.)
4. Be excited about the job – tell him he will become very sophisticated. Discuss the measurements of the various secretaries in his future office.
5. Do not talk about work – programmers are skittish creatures and become very shy when asked to discuss their past accomplishments. It is considered extremely dangerous to outline the tasks that will be expected from him because it interferes with point (1) above.
6. Offer him an interview trip – programmers love to travel free. Be sure to point out the advantages of living in his new location.
7. Let him know you want him – call him at least once a week. Programmers have short memories and are liable to misplace addresses, card decks, and keys. Make sure he remembers you. It is sometimes helpful to send him a photograph of yourself in a benign pose.

If you find yourself too busy to study the above principles or if your results are inadequate, there are professional hunters who have mastered the art of transplanting programmers. These gentlemen will, for a nominal fee, take your collecting burden upon themselves. It is often profitable to use them in order to study their methods, since the above seven tips are so sketchy.

III

TO USE A PROGRAMMER

In spite of the extreme difficulties you will experience in finding and collecting one or more programmers, the most demanding and heartless task in The Care and Feeding of Programmers is trying to get them to perform work. Preliminary evidence from The Committee indicates widespread failure on the part of Collectors in this area. The Committee further reports that those who have succeeded in this task have such disgusting personalities and use

(Continued on Page 15)

POSITION ANNOUNCEMENTS

Programmers

COBOL

Experienced in business applications programming in disc/tape, third generation environment. Real-time or teleprocessing experience valuable. Degree not required.

FORTRAN

Experienced in FORTRAN programming for scientific applications. Degree in Mathematics or Science. Statistical design of experiments and/or analog experience desirable.

Positions are in a newly organized in-house computer utility serving Administration, Medical Services and Research. Starting from essentially manual systems, we will go on with third generation hardware and the appropriate systems. No tab–no emulation–no program conversion. Salaries are competitive, opportunities unusual. Send a resume with configuration experience, programming responsibilities, and salary history to:

PA/21/01, Computerworld
60 Austin St., Newton, Mass. 02160

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Philadelphia
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COMPUTER PERSONNEL

For satisfactory counseling in the computer field, contact Rodger Van Wye who offers 16 years experience in management and staff levels in systems and data processing.

All client companies assume interview, relocation and employment fees.

Systems Analysts – Manufacturing, Business Experience. Computer oriented $10-15,000
Programmers – Commercial and Scientific. BAL – COBOL – Third Generation Hardware $9-14,000
Programmers – BS-ME or EE Process Control Systems $12-18,000

Above positions are nationwide. Please submit your resume in confidence including your salary and location preferences to Rodger Van Wye, Manager – Systems/EDP

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(216) 652-5871

Programmer

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2 Openings created by dept. expansion. Prefer college grads; must have exp. on 360/30 computer, COBOL, BAL. 1400 series exp. helpful. Job will require systems work. Not a trainee pos. Challenging future with diversified growth co. Salary growth based on performance. Outstanding benefits incl. profit sharing & stock purchase plan.

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Minneapolis

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Computerworld
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Newton, Mass. 02160

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Are you a Systems Analyst/Programmer with a college degree or . . .

Are you a college graduate who wants to become a Systems Analyst/Programmer?

Would you like to experience the challenge of the newest commercial computer applications?

Would you like to live and work in Madison, Wisconsin, an intriguing university community of 170,000?

Can you find pleasure in being minutes away from some of the finest recreational areas in the Midwest and at the same time be able to get to work in ten minutes or less?

Are you anxious to get away from the hustle and confusion of big city living and have your children attend one of the finest school systems in the country?

Would you like to know more about a position in which you can have the satisfaction of using your own judgment to handle the job, where you will work as an individual whose initiative and opinions are respected?

Oscar Mayer & Co.

Send Resume in Confidence to: PA/21/04 Computerworld, 60 Austin St., Newton, Mass. 02160.

An Equal Opportunity Employer

600-Year Study Begins, Preliminary Report Calls Programmers Spenders

(Continued from Page 14)

such inhuman methods that they have burned all the relevant documentation. Responsible readers are urged to contribute notarized affidavits of any success they have had in getting programmers to work. Rewards for such information are being considered.

IV

TO KEEP A PROGRAMMER

Regardless of their inclination to avoid work, you will find it necessary to keep the programmers you collect. This has been demonstrated time and time again and is one of the fascinating charms of collecting programmers. The following practices are considered minimal, and successful collectors innovate many other in their attempts to keep

1. Give them frequent raises. Programmers spend more money than they make and will encounter severe financial difficulties if kept at the same salary too long.
2. Praise their efforts. The fact that nothing is being accomplished does not mean they aren't trying. Remember: if you don't praise them, someone else will – and for more money!!
3. Send them to conferences. Programmers need to feel that people are trying to collect them and conferences satisfy this urge wonderfully. If you try to keep them from being collected, they will begin to feel insecure and will get collected to prove that they are still desirable. The ultimate satisfaction in being a collector is to have a programmer whom everyone else is trying to collect – unsuccessfully!! Don't deny yourself this thrill by being overly possessive.
4. Turn them into collectors. Nothing thrills a programmer more than the authority to collect his own programmers.
5. Change your hardware frequently. This will make your programmers feel up-to-date and secure.
6. Never make a decision without asking the advice of your programmers. They will consequently consider you a Great Collector and other programmers will beg you to collect them.

Anyone who has had difficulty keeping his programmers should study the above points thoroughly.

FURTHER RESEARCH

Although the above material covers the preliminary discoveries of The Committee on how to find, collect, use, and keep programmers, The Committee has not restricted its task to those four areas. Some highly critical questions concerning what happens to programmers as they become old have emerged from The Committee's surveys. For example, an extensive search revealed that the oldest known programmer is a mere twenty-six!

The Committee subsequently contacted numerous intelligence agencies, missing persons bureaus, and municipal, state and federal authorities in an attempt to find some old programmers. The findings to date are so skeletal that no conclusions can be reached. Some specific examples, without Committee comment, were released, and are reproduced, without comment, below.

- Programmer X, Age 32. After four years of programming, X became a staff consultant for a large manufacturer of fishing reels. He has not been heard from since.
- Programmer Y, Age 29. After six years of being collected, Y himself became a collector. He has currently collected sixteen programmers, two of whom got married.
- Programmer Z, Age 30. After three years with a Great Collector, Z was thrown into the Think Tank of a small steel company. Z is in charge of the New Words Department, whose latest contribution was "micromaximization". He is in line for the Vice Presidency.

The Committee expects that more Old Programmers will be evaluated during this century's data reduction phase. Further, because of more sophisticated reporting techniques, they feel that fewer programmers will slip through the "identity gap" as they become old.

In a taped interview, Dr. Von Nosemaster recently said, "The critical shortage of programmers is a significant deterrant to our technological, industrial, commercial, and financial expansion. We of The Committee hope to pass on work to our successors that they may one day open the doors to The Care and Feeding of Programmers. And anyone who thinks that an effort of this magnitude can be done overnight is either out of his mind or a programmer." The rest of The Committee murmured, "Hear, hear."

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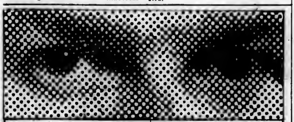

● MORE ON PAGE 16

Computer Specialists

Programmers ● Analysts ● Systems Programmers

1.) Have you designed, developed and/or produced large scale computer applications?

2.) As a Systems Programmer do you have a minimum of 4 years' computer experience with at least 1-2 years in operating systems? As a Programmer do you have experience in Assembler &/or COBOL languages?

3.) Have you worked with IBM 360 equipment – models 65, 50 or 40 or the equivalents?

4.) Are you seeking a better opportunity with rapidly expanding EDP operation in an installation which is one of the most sophisticated on the East Coast?

If your answers to these questions are "yes", we invite you to send your resume and salary requirements, in confidence to:

PA/21/02 Computerworld, 60 Austin St., Newton, Mass. 02160

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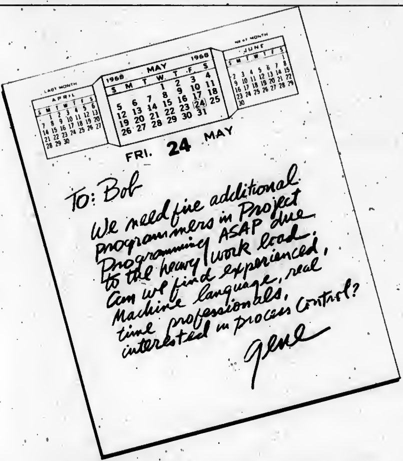

To: Bob
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Gene

Engineering, scientific, or mathematical degree with experience in the command and control, scientific, or industrial fields. Programming efforts will be in batch control, direct digital control, multi-level programming, supervisory control, and scientific programming.

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POSITION ANNOUNCEMENTS

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With experience in maintaining computer system software in general area of compilers and operating systems. Degree preferred. CDC 3300 equipment.

Will be responsible for acquisition, alteration and maintenance of MASTER and its compilers, assisted by one or more p.t. grad. students.

Position available immediately. Excellent benefits, including free tuition. If interested, please submit resume to Professor R.I. Carter, Room 25, Northeastern University, 360 Huntington Avenue, Boston, Massachusetts 02115.

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BOSTON, MASS. 02115

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TOP SALARY

and benefit program including
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Send resume in confidence to:

PA/22/02 Computerworld
60 Austin Street
Newton, Mass. 02160

SKIL CORPORATION

Chicago

Bigham Appointed to ATP

NEWTONVILLE, Mass. – Donald W. Bigham has been appointed vice president of Advanced Technology Publications, Inc., a subsidiary of the International Data Corp.

Bigham will be responsible for financial and business planning. He will also serve as associate publisher of "Laser Focus," the international monthly magazine and information supplier for the laser and electro-optics fields.

Bigham formerly was account supervisor with Culver Advertising, Inc. Previously, Bigham served as a management consultant with Stewart, Dougall, and Assoc., a New York consulting firm, and was market research manager for "Time" magazine.

Advanced Technology Publications offers a variety of technical publications and information services for industries created by emerging technologies. The co pany was founded in 1966 as a subsidiary of the International Data Corp., a leading market research and consulting firm, with offices here, in New York, and in London.

Bigham lives in Wellesley, Mass. He attended Dartmouth College, and has an MBA degree from the Harvard Graduate School of Business Administration.

Dial-Data Orders Another SDS 940

Dial-Data, Inc., Newton, Mass., has ordered an SDS 940 time sharing computer to be installed in the Washington, D.C., area by Scientific Data Systems. The computer will serve the national capital metropolitan area and will provide load and backup capability for the SDS 940 which has been operating in Dial-Data's Newton headquarters since early 1967.

Orders and Installations

Lissner Computer Services, Inc., Mountain View, Calif., has installed a Univac 9300 computer to handle various administrative operations. The service bureau is using the computer for subscription fulfillment, accounts receivable, sales analysis, inventory control, processing of orders, and other applications.

Swissair, New York, has installed an IBM 360/30 computer in Manhasset, Long Island, to speed up clearance and delivery of air cargo arriving at Kennedy Airport from Europe. A program developed by R. Dixon Speas Associates, Manhasset, a subsidiary of Planning Research Corporation, completes customs clearance forms before the cargo arrives.

Ter Bnsh & Powell, Inc., Schenectady, N.Y., general insurance agency, has ordered an NCR Century 100 system, which will be used to process 20,000 accounts, to handle payroll, salesmen's commissions, and installment finance agreements.

Commercial Data Processing Center, Inc., Knoxville, Tenn., has installed a Honeywell Model 120 to "meet its commitment" as a data processing and systems service bureau. Services include accounting, payrolls, inventory control, sales analysis, school report cards, and invoicing.

Stanford University, Palo Alto, has recently ordered an SDS Sigma 5 computer to aid research in radio and radar astronomy, system simulation and control, and adaptive pattern recognition. Stanford scientists will link the Sigma 5 to two analog computers to form a hybrid system. Projects to be aided by the system include theoretical and experimental radio and radar studies of planetary ionospheres, atmospheres, and surfaces; the sun; the lunar surface; and the interplanetary medium.

Manganese Steel Forge Company, Philadelphia, has ordered a Univac 9200 Computer System to be used for inventory and production control as well as general accounting. Colorado Kenworth G.M.C. Inc., Denver distributor of trucks and truck parts, will use its first computer, a 9200, for processing accounts receivable, invoicing, and inventory control.

Grossman Music Corporation, Cleveland, distributor of musical publications and merchandise, has installed a 9200 which will handle billings, inventory control, order entry, and sales analysis.

O'Bryan Brothers, Inc., Chicago manufacturer of ladies' lingerie, has ordered an IBM System/360 Model 25, to be used for finished goods inventory control [illegible] puting piece-work payro[illegible] ma[illegible]ket analysis, order pr[illegible]ng writing, and billing.

Ampex Gets Order for Memories From RCA Missile, Radar Division

RCA's missile and surface radar division, Moorestown, N.J., has ordered $200,000 worth of Model RG memories from Ampex to be used in radar data acquisition systems. Anelex Corporation, Boston, has contracted for $1.2 million worth of Ampex Model TM-7 digital magnetic tape transports. Both orders will be filled from the Ampex Computer Products Division, Culver City, Calif.

CONTRACTS

The Defense Contract Administration, Boston, will lease 22 Honeywell computers for a new system to serve 11 headquarters in the Boston region. The system will process the data on 270,000 contracts for materials and services of the Defense Supply Agency, the armed services and the National Aeronautics and Space Administration.

The Army Frankford Arsenal, Philadelphia, has awarded an $8.7 million contract to the Aerojet-General Electronics Division, Azusa, Calif., to produce ten Flir (forward looking infrared) target acquisition, fire, and armament control systems for UH-1 Iroquois helicopters. The new system is an outgrowth of corporate sponsored research and development in detectors, multiplexers, and microelectronics.

Bell Telephone Laboratories has selected Lockheed Electronics Company, Los Angeles, to design and produce 15 large capacity 500 nanosecond core memories for prototype subsystems of the Sentinel System. The memory system is Lockheed's Model CD-50, redesigned for fabrication with components meeting weapons system requirements.

The West Virginia Department of Natural Resources has awarded a contract to Planning Research Corporation, Los Angeles, to support implementation of the Elk River Demonstration Plan. Using a systems approach, Planning Research will study the river basin and surrounding watershed area as a "system" having a highly variable character. Later, the alternatives for river basin growth and development will be identified, and the ones assuring best operational and administrative efficiency will be selected.

The Canadian Department of Agriculture has awarded Computer Sciences of Canada, Ltd., Ottawa, a contract to design and implement computer programs for an information system intended to help Canadian farmers improve their productivity and profits. The contract covers development of the initial phase of the Canadian Farm Management Data System, which will provide farmers with statements of net worth, depreciation schedules, and livestock analyses.

The Advanced Products Division of the Link Group, General Precision Systems, Inc. has received a contract for over $400,000 from the U.S. Air Force to develop a new Photoelectric Recording Analyzer (PRA). The primary function of this computer-controlled film analyzer will be to automatically extract selected data recorded on 35mm rolled film and aperture cards through the use of a high precision flying spot scanner. The system will read digital data blocks and analog waveforms associated with each data block. A data block number, supplied from either the associated general purpose computer or inserted manually, will cause the system to search automatically up to 500 feet of film for the specified block. This will be done at very high stepping rates. The scanner system will then determine the amplitude of the associated waveform at 1000 points. The amplitude will be measured to an accuracy of approximately 5 microns.